DIALECTIC AND ITS PLACE IN THE DEVELOPMENT OF MEDIEVAL LOGIC

Eleonore Stump

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For Norman

לכל זמן ועת לכל חפץ
תחת השמים

את הכל עשה יפה בעתו

Ecclesiastes 3:1,11

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of a colleague; all my work has been better in consequence. I have learned a great deal from him about philosophy and scholarship; and although we often still do disagree, those disagreements have been one of the most fruitful sources of my research, both in medieval philosophy and in the philosophy of religion, where we have sometimes resolved our disagreements in collaborative papers. For both his sternness and tenacity I continue to be very grateful.

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DIALECTIC AND ITS PLACE IN THE DEVELOPMENT OF MEDIEVAL LOGIC

Introduction

Since 1975 my work in medieval logic has concentrated on dialectic. I have tried to trace scholastic treatments of dialectic to discussions of it in the work of Aristotle, the Greek commentators on Aristotle, and the Latin rhetorical tradition. But I have been especially interested in Boethius, whose discussions of dialectic were among the most important influences on scholastic treatments of that subject. Accounts of dialectic based ultimately on Boethius's views continued to play a fundamental role in philosophy through the fourteenth century. The earliest scholastic logician whose work we know, Garlandus Compotista, devoted a great deal of attention to Boethian dialectic, and I have tried to follow the development of scholastic dialectic from Garlandus through various twelfth-century logicians (including Abelard) and the thirteenth-century terminists into the fourteenth century in the work of William Ockham.

The scholastic literature on dialectic is a vast treasure for scholarship, which even now is largely unmined, and my own work constitutes just one trench through the material, with many gaps and omissions. For instance, I have concentrated on logic treatises, devoting only a little attention to commentaries on Aristotle's *Topics* and even less to commentaries on Boethius's treatises. But I have tried to extract and present enough of the work to show something about the ways in which the medieval tradition of dialectic changed and how those changes reflect the basic logical concerns of different periods. I have also explored some of the branchings of the medieval tradition of dialectic. Medieval treatment of dialectic is one of the sources, though by no means the only one, for the later scholastic theories of consequences and obligations, two important and still neglected areas of scholastic logic. I have tried to show the connection between dialectic and the rise of consequences, and I have argued that the tie of obligations to dialectical disputation helps us to understand the role of obligations in medieval philosophy. Treatises on obligations proliferate in the fourteenth century, but their content has until recently been opaque to us. Some of them seem to countenance an apparent violation of such indisputable logical laws as that a disjunction is true if and only if one of its disjuncts is true, and some of them appear to connect obligations with issues in epistemic logic or the logic of counterfactuals. I have tried to show that these later treatises on obligations are an understandable outgrowth of an earlier concern with logical paradoxes arising in the context of dialectical disputation.

The essays in which I present the results of this exploration of the history of dialectic are scattered through various journals and anthologies; this collection brings many of these essays together for the first time. Some of them are reprinted here just as they were originally published; others I have revised since they first appeared, and the revisions are published here for the first time. A note attached to each essay gives its original place of publication and indicates whether it has been revised. (All these revisions were substantially completed by 1980, when I gave a course of lectures on dialectic for an NEH institute.)

No one is yet in a position to write the definitive history of medieval logic or even of medieval dialectic, but the overview provided by these essays taken together provides some insight into the way logic was understood in the medieval period and the ways that understanding changed. For Boethius dialectic was largely a corollary of metaphysics. The world has a certain nature, in consequence of which certain things are invariably or at least regularly connected with each other. Because we can know this nature and the invariable or regular connections it involves, we can know that certain inferences among propositions preserve truth. In early medieval logic, before Abelard, no significant distinction was drawn between dialectic and the rest of logic in this regard; even logical laws warranting categorical syllogisms are treated as on a par with rules about the relationship between genera and species. Abelard tried to separate certain parts of logic from metaphysics by insisting that certain inferences hold not in virtue of any dialectical relationships but solely in virtue of their form. This partial divorce between logic and metaphysics was completed by the terminists. They saw dialectical inferences as derived from categorical syllogisms; in their view dialectical inferences are at least theoretically reducible to syllogisms and thus valid simply in virtue of their form. In this way the terminists effected a complete divorce between logic and metaphysics. But their attempt at formalizing logic was simple and not entirely satisfactory to subsequent generations of philosophers. For example, there are inferences, such as conversion inferences, which are necessary to establish the validity of categorical syllogisms but which are not themselves reducible to categorical syllogisms. And there are also contexts (notably that of the dialectical disputation, discussed in obligations treatises) in which types of inferences or rules for inferences that would otherwise be perfectly acceptable produce paradoxical results. So, for instance, Ockham discussed cases in which the otherwise acceptable rule 'From the impossible anything follows' does not hold. In the burgeoning study of consequences and the growing interest in obligations the rather narrow formalization of logic brought about by the terminists was stretched and broadened. Ockham included a discussion of obligations within his treatment of inferences, and he also considered a broad variety of dialectical inferences. In fact, he blurred the boundary between dialectic and demonstration, thereby elevating dialectic above the second-class status accorded it by the terminists. The effect is in some (but certainly not all) respects a reversal of Abelard's move, which carefully separated inferences valid in virtue of their form from all other inferences and accorded the purely formal inferences a superior epistemological status. Consequently, Ockham's treatment of inferences is richer and broader than that of the terminists, but it is also much looser than the terminists' completely formal logical system. This picture of scholastic logic, of course, has the inaccuracy and inadequacy of any large-scale generalization, but even a somewhat inaccurate overview of the forest may be helpful as one works one's way through the trees of scholastic logic.

The Sources for the Scholastic Tradition of Dialectic

The scholastic tradition of dialectic has its roots in Aristotle's *Topics*. This book has been described as an early and unsuccessful attempt at a codification of logic, superseded by the logically more astute *Prior Analytics*; but that description is, I think, mistaken. Aristotle's announced purpose in the *Topics* is to provide an art of arguing. He wants to codify the Socratic style of arguing into an art, the possession of which will make a person adept at the sort of dialectical disputation Socrates engaged in. To be a formidable arguer of the Socratic sort, Aristotle believes, the most important skill required is facility in the discovery of arguments, and the bulk of the *Topics* is devoted to a method for finding arguments useful in dialectical disputations. The heart of this method is a Topic. What exactly a Topic is for Aristotle is not clear, and neither is the method which is supposed to be based on the Topics. In "Dialectic and Aristotle's *Topics*," I argue that an Aristotelian Topic is primarily a strategy of argumentation and secondarily a principle supporting the crucial inference in the argument generated by such a strategy. The method for using the Topics is tied to Aristotle's predicables (accident, genus, property, and definition). In Aristotle's view, every dialectical argument consists in showing that a predicate is or is not predicated of the subject at issue, and every predicate is subsumed under one of the four predicables. Aristotle's Topics are grouped according to the four predicables; and within each group associated with a predicable, the Topics are ordered by the degree to which they have to do with the nature of the predicable for that group. Aristotle's *Topics*, then, is a system that teaches the essence and accidents of each of the predicables in order to make a person deft at finding arguments.

Boethius's method for finding arguments is rather different from Aristotle's. To begin with, he recognizes two different types of Topics, maximal propositions or principles and Differentiae (broad headings under which maximal propositions may be grouped). Maximal propositions are supposed to be self-evident truths, which function in argumentation as guarantors of validity or of soundness. In predicative arguments they are general premisses essential to the validity of the argument; in hypothetical arguments, they validate the passage from antecedent to consequent in the conditional premiss of the argument. The main instrument for finding arguments is the Differentia. There are twenty-eight of them (roughly speaking, depending on how they are counted), and they function to find arguments by suggesting the sort of term that could serve as the intermediate between the subject and the predicate in a dialectical question. What exactly the method for using the Differentiae is and how it is related to the function of the maximal propositions is discussed in detail in "Dialectic and Boethius's *De topicis differentiis*." The differences between the Boethian and Aristotelian accounts of the Topics and some suggestions for the way the Topics developed from Aristotle's time to Boethius's are laid out in "Between Aristotle and Boethius."

Topics in Early Scholastic Logic

The *Dialectica* of Garlandus Compotista, which may have been written before 1040, is the earliest complete medieval logic text still extant, as far as we now know. In this work, Garlandus's overriding interest is in hypothetical syllogisms. According to Garlandus, it is not possible to understand categorical or hypothetical syllogisms without having a thorough understanding of the Boethian Topics; and his treatment of both types of syllogisms is heavily dependent on his theory of Topics. Garlandus's discussion of Topics is plainly derivative from Boethius's *De topicis differentiis*, but his view of the nature and function of Topics is quite different from Boethius's. For Garlandus the Differentiae provide conditional propositions which are the basis for simple hypothetical syllogisms, and the maximal propositions demonstrate the truth of the conditional premiss of the hypothetical syllogism because the conditional proposition is shown to be an instance covered by the maximal proposition. The Topically dependent inferences are acceptable, on Garlandus's view, not in virtue of their form but in virtue of a certain relationship between two of the terms in the inference or between two of the things signified by those terms. In some cases Garlandus plainly takes a Differentia to be a linguistic entity, and in others he specifies that the Differentia is not a linguistic entity but rather a part of extramental reality. On his view, a Differentia is that whose nature makes a particular inference acceptable. As I explain in "Topics and Hypothetical Syllogisms in Garlandus Compotista," according to Garlandus all inferences, categorical as well as hypothetical syllogisms, are dependent on the Topics for their validity; and in the case of hypothetical syllogisms, the soundness of the syllogism is also Topically dependent.

In Abelard's work, we see a growing interest in categorical syllogisms and an attempt to divorce them from the Topics, separating them from Topical inferences. Like Garlandus, Abelard sees the Topics as important for the study of hypothetical syllogisms, because the acceptability of any given conditional proposition is dependent on the Topics; but he denies that categorical syllogisms are in any way Topically dependent. Categorical syllogisms are valid just in virtue of their form, and they are perfect inferences. Topically dependent inferences are imperfect inferences; their validity stems not from their form but from the nature of things. Abelard defines a Differentia as that thing in whose relation to another thing the "firmness" of an inference consists. The details of Abelard's divorce between Topical inferences and categorical syllogisms is spelled out in "Abelard on the Topics." In "Logic in the Early Twelfth Century" I characterize the general treatment of inferences in the period before Abelard to show the context in which he was working, and I also discuss differences among Abelard's accounts of Topics in several of his works to make some suggestions about developments in Abelard's thought on the subject. I argue that Abelard's approach to inferences was innovative in his period and that whether or not this Abelardian innovation was itself influential on the terminists and their precursors, the approach to inferences found in Abelard's work is representative of a change in scholastic theories of the Topics in particular and of logic in general.

Logic and the Topics in the Thirteenth Century

Peter of Spain, whose work on the Topics is in many respects representative of the terminists, takes Topical inferences as dialectical syllogisms. He draws a sharp distinction between dialectical and demonstrative syllogisms. The premisses of dialectical syllogisms are only probable and consequently produce only opinion, not knowledge. The study of Topics is an art, not a science; hence, dialectical or Topical arguments plainly have a subsidiary status, secondary to demonstrative syllogisms. Peter takes Topical inferences to be enthymemes, and his method for using the Topics seems at first simply a shorthand way of confirming enthymemes, which could also be confirmed by being reduced to valid categorical syllogisms. In fact, William of Sherwood does explicitly reduce all his Topical inferences to categorical syllogisms, often in a way that is labored and contrived. Attention to the details of Peter's theory of Topics, however, shows that Peter's method for using the Topics to warrant inferences is broader and less tied to the syllogism than at first appeared to be the case. Peter's method and the metaphysical theories that support such terminist approaches to the Topics are discussed in "Terminist Logicians on the Topics."

The terminists' work on Topics and syllogisms is markedly Aristotelian; but, after the terminists, thirteenth-century logic is characterized by a twofold development: a gradual erosion of such Aristotelianism in logicians' attitudes toward Topics and syllogisms, and an increasing concentration on the nature of consequences. The undermining of Aristotelianism in the treatment of the Topics results from a growing inclination to see all syllogisms as dependent on Topics and a tendency to consider not only demonstrative but also Topical or dialectical arguments as necessary. These developments and their connection to the rise of consequences are discussed in "Consequences and the Decline of Aristotelianism in Formal Logic." That essay concludes with a detailed examination of an early treatise on consequences by

Walter Burley, which appears to represent logical doctrines in transition between the terminists' Aristotelianism and full-fledged fourteenth-century theories of consequences.

Obligations

Another development arising in the thirteenth century which also stems from Aristotle's theory of dialectic is the theory and practice of *obligationes*. Obligations in scholastic treatises from the thirteenth and fourteenth centuries is a complicated set of rules for inferences set in a disputational context, where the disputational context makes a difference to the evaluation of the inferences. Frequently, complications for the evaluation of an obligations inference arise because there is a reference in the premisses themselves to the evaluator of those premisses or to an action by the evaluator within the disputation. The remaining papers in this collection consist in or at least include discussions of scholastic treatments of obligations.

The first is "William of Sherwood's Treatise on Obligations." At the time I wrote that essay, I had serious misgivings about the attribution of the treatise in question to William of Sherwood, as I indicated in the footnotes. Since then, Paul Spade and I have coauthored a paper (not included in this collection but cited in a revised version of the footnotes to the paper on Sherwood) in which we argue that the treatise at issue should not be attributed to William but is almost certainly written by a philosopher of a later generation, and we suggest that the treatise may in fact be an early draft of a treatise on obligations by Walter Burley. A detailed examination of the approach to obligations in this treatise can be found in "William of Sherwood's Treatise on Obligations."

Walter Burley's treatise on obligations is a representative account of obligations in an early stage of their development, before the shifts of emphasis brought about by the work of Richard Kilvington and before the enormous changes in obligations introduced by later fourteenth-century logicians such as Roger Swyneshed. This treatise consists largely in an investigation of certain paradoxical arguments which arise in the context of dialectical disputation, when apparently unimpeachable rules of formal logic produce absurd results because the context of the disputation has not been taken into account. In "Walter Burley on Obligations," I consider the details of Burley's solutions to various paradoxes, arguing on that basis that Burley allows the disputational context and the nature of things outside the disputation to mingle during the disputation in a way that leaves the fundamental rules for obligations incoherent.

Recognizing that incoherence is, I think, the key to understanding the otherwise very perplexing fourteenth-century developments in obligations. In "Roger Swyneshed's Theory of Obligations," I examine those developments. I argue that the discussions of obligations in the work of Kilvington and Heytesbury can be understood as attempts to resolve the incoherence in Burley's account of obligations. In the course of their discussions of obligations Kilvington and Heytesbury also raise issues central to epistemic logic; the issue that chiefly concerns them is whether we can ever know and doubt the same thing at the same time. (Kilvington thinks we can; Heytesbury insists we cannot.) Swyneshed's account of obligations at first glance seems bizarre since it rests on the denial of apparently fundamental and entirely uncontroversial logical laws. I show that Swyneshed's work needs to be understood in light of the attempts by Kilvington and Heytesbury to resolve the sort of incoherence uncovered in Burley's obligations. With that background one can reconstruct the sort of reasoning that led Swyneshed to suppose that under certain interpretations of the rules for dialectical disputations, some fundamental logical laws do not hold within those disputations.

Ockham

The last paper in the collection, "Topics, Consequences, and Obligations in Ockham's *Summa logicae*," brings together the main themes of the essays collected here: Topics, obligations, and consequences. I consider Ockham's views on the nature of consequences and the ways they are related particularly to Topics and obligations but also to syllogisms and insolubles. I also examine Ockham's general theory of inferences, and I argue that, contrary to the views of some contemporary scholars, there is nothing in Ockham's criteria for valid inferences which completely corresponds to the notion of material implication in contemporary analytic philosophy. Finally, I show how syllogisms, Topics, obligations, and insolubles are woven together in Ockham's work into one general account of inferences which is at once richer and broader than that of the thirteenth-century terminists. The terminists tend to force all nonsyllogistic arguments, including dialectical arguments, into syllogistic form. By contrast, Ockham's account of inferences recognizes a variety of nonsyllogistic inferences, including dialectical and obligational inferences, without trying to mold them into syllogistic form; and it includes syllogisms as one species of consequences among others. The result, which clearly represents an advance, is a development toward a logic that is both formal and able to account for many sorts of inferences.

These essays, then, constitute one line of exploration through the rich medieval literature on dialectic and associated issues. The story of scholastic logic which they present certainly needs to be supplemented by information from other sources (I especially recommend the study of commentaries on Boethius's *De topicis differentiis* in Niels-Jørgen Green-Pedersen's recently published *The Tradition of the Topics in the Middle Ages*, and it will no doubt also be corrected and altered as we extend our knowledge of logic in this period. But, taken together, these essays contribute to our understanding of what was for the scholastics the instrument with which all philosophical argumentation operates.

1

Dialectic and Aristotle's *Topics*

To do justice to Aristotle's *Topics* in one essay is difficult. The book has generated a great deal of literature recently, and the subject itself is complex. Aristotle's concept of a Topic is not easy to comprehend and is the subject of considerable controversy. Since Aristotle uses Topics in the *Rhetoric* also, a thorough account of an Aristotelian Topic would require discussing the *Rhetoric* as well as the *Topics*. But then it becomes necessary not only to interpret the *Rhetoric* and examine the relevant technical terms, such as 'enthymeme,' but also to investigate the similarities and differences between the Topics in the two treatises so that one does not confuse rhetorical and dialectical notions. There is also the troublesome question of the *Topics'* date of composition and its relationship to the *Analytics* and the theory of the syllogism contained therein. Scholars not uncommonly treat the *Topics* as a superseded attempt to discover what Aristotle formulated successfully in the *Analytics*.[1] Such a view, I think, is based on a misunderstanding of the *Topics;* and to the extent to which this view has influenced conclusions about the work's date of composition, it would be worthwhile reexamining those conclusions.[2] Clearly, the scope and intricacy of all these issues could easily supply the material for a whole book. For my purposes here, however, it is sufficient to present only as much of Aristotle's theory of Topics as will aid comprehension of Boethius's *De topicis differentiis* and put the Boethian treatise in its historical perspective. So in what follows, I will confine myself as much as possible to Aristotle's exposition of Topics in the *Topics*, omitting questions about the work's relation to syllogistic logic and touching on the *Rhetoric* only where necessary.

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[1] See, for example, David Ross, *Aristotle*, 5th ed. (London: Methuen, 1966), p. 59.

[2] See, for example, Richard L. Van der Weel, "The *Posterior Analytics* and the *Topics*," *Laval Théologique et Philosophique*, 25 (1969), 130–141.

The purpose of the Topics, as Aristotle says at the beginning of his treatise on them,[3] is to provide a *τέχνη* of dialectical disputation, but at first glance the major part of the *Topics* seems to contain not a *τέχνη* but a repetitious and disordered listing of Topics. Showing the existence and nature of the art in the *Topics* is my concern here.[4] The bulk of Aristotle's treatise is concerned with Topics. Six of the eight Books of the *Topics*, Books II–VII, consist almost solely of Topics; and these, as I will argue, are the means for discovering particular arguments. But the arguments to be found are dialectical. They are meant for use in dialectical disputation, and the purpose of the *Topics* is to make a man good at such disputation. So before considering Aristotle's art of discovering arguments, I want to give some idea of the context in which those arguments were meant to be used.

A dialectical disputation arises from a problem (*πρόβλημα*), which is a question of this form: "Is the world eternal or not?" or, "Is pleasure to be chosen or not?"[5] Not every question of this form is a problem, but only those that are controversial, because problems are issues for disputation, and no disputant would be willing to argue for what is altogether unbelievable or against what seems to be established truth. So to be a dialectical problem, a question of this form must be one stemming from disagreement among the many, among the wise, or between the many and the wise.[6]

In a dialectical disputation, one participant is a questioner and the other an answerer; each participant upholds one side of the problem as true. The answerer, for example, may hold that the world is not eternal and the questioner that it is eternal. What the questioner upholds as true is called a dialectical proposition (*πρότασις*); and since a dialectical proposition is the questioner's thesis, it is generally in the form of a question, such as, "Pedestrian biped animal is the definition of man, isn't it?"[7] For each dialectical problem, then, there is a dialectical (interrogative) proposition that expects either a yes or a no answer.[8]

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[3] *Top.* 100a18–24; cf. also *Soph. El.* 183b23–184a8.

[4] Similarities and differences and historical connections between Aristotle's and Boethius's methods are considered in "Between Aristotle and Boethius."

[5] *Top.* 101b28–33, 104b7–8.

[6] Cf. *Top.* 104a4–8 and 104b1–5.

[7] "*ἀρά γε τὸ ζῷον πεζὸν δίπουν ὁρισμός ἐστιν ἀνθρώπου*" *Top.* 101b30–31.

The questioner tries to establish his own thesis and to refute the answerer's thesis by asking the answerer questions designed to compel his agreement to the questioner's thesis. The answerer tries to prevent the questioner from achieving his aim. But though the questioner and the answerer have opposite aims, they have a common task,[9] because neither the questioner nor the answerer alone has the power to make the disputation a good one. If the questioner does his job well but the answerer answers perversely or contentiously (for example), or if the answerer does his job well but the questioner asks questions in a way that lacks cogency or efficacy (for example), the disputation will not be a good one.

The questioner works in this way. Since he wants to make the answerer accept his thesis, he needs to find an argument with that thesis as its conclusion. This argument, which is found by means of a Topic, forms the basic structure of the questioner's side of the disputation; Aristotle calls the premisses of this argument the necessary (that is, required) premisses.[10] Once the answerer has granted the necessary premisses, he is obliged to grant the questioner's thesis as well. But the answerer may not be willing to grant all the necessary premisses, and so the questioner must find a subsidiary argument for each of the necessary premisses which the answerer might be unwilling to accept. Each of these subsidiary arguments, then, will yield one of the necessary premisses as its conclusion. The necessary premisses and the premisses in the subsidiary arguments and anything else that may be part of the questioner's contribution to the disputation must be in the form of questions to which the answerer can respond properly with "yes" or "no." When all the appropriate questions have been chosen, they must be arranged. Part of the questioner's art is to conceal from the answerer which are the necessary premisses crucial for producing the conclusion, because in this way the answerer is more likely to answer as he thinks and less likely to balk perversely or ingeniously at the important questions. Aristotle has a number of rules of thumb to help the questioner conceal the structure of his argument. He says, for example, that the premisses should not be asked for in their natural order but out of sequence

[8] *Top.* 101b28–36.

[9] *Top.* 161a19–21.

[10] Cf. *Top.* 155b3–28.

and separated from the other premisses they naturally go with.[11] He advises the questioner to ask for a needed premiss in some form other than that wanted in the argument; for instance, if the questioner wants a premiss about contraries, he should ask for one about opposites.[12] Other, more general suggestions are designed to help the questioner achieve his aim. Aristotle says, for example, that the questioner should never try to establish his thesis by a *reductio* if he is arguing with someone not well trained in reasoning. Such people are only confused by a *reductio* and frequently will not grant a conclusion arrived at in such a way.[13]

The answerer's aim is to block the aim of the questioner: to avoid having to agree to the questioner's thesis or having to say what is not readily believable (ἀδοξότατα) in order to avoid agreeing with that thesis.[14] He prepares for his part in the dispute by arguing the questioner's case against himself to learn how to parry the questions he is likely to be asked.[15] Hence he goes through much the same procedure as does the questioner; and the Topics, designed to aid the questioner directly, are useful for the answerer, too. In addition, Aristotle offers several rules of thumb specifically for the answerer. The answerer, for example, should see whether his thesis is generally accepted as true. If it is, he should try to grant only those premisses that are themselves generally accepted or seem to be so. If, on the other hand, his thesis goes against public opinion, then again he should try to grant only premisses of the same sort. There are two advantages for the answerer in following this rule. First, he will seem consistent. Second, because the questioner's thesis is the opposite of his, if the answerer's thesis is generally accepted as true, the questioner's thesis must go against public opinion, and vice versa. Hence, since the questioner's thesis will have to be established by premisses that are like it (generally accepted or rejected), if the answerer grants only premisses of the same sort as his own thesis, he is likely to block the establishment of the questioner's thesis.[16]

The questioner is limited to yes-or-no questions, but the answerer is not restricted to saying only "yes" or "no." If he thinks a question is vague or unclear, he can ask for a clarification.[17] If he recognizes that a question contains an ambiguous word, he may

11. Cf. *Top*. 155b20–156a26.
12. *Top*. 156a27–156b3.
13. *Top*. 157b34–158a2.
14. Cf., for example, *Top*. 159a18–22.
15. *Top*. 160b14–16.
16. Cf. *Top*. 159a38–159b27.
17. *Top*. 160a18–23.

ask the questioner in what sense of the word the question is meant; or, if he sees that the word is ambiguous sometime after he has answered the question, he may object that he assented to that question only in one particular sense of the word.[18] In some cases, the answerer is *obliged* to say more than "yes" or "no." If, for example, he has granted all the particulars of an induction and then refuses to grant the universal, he must give a reason for refusing to do so; he must give an instance in which the universal does not hold or in some other way argue against the universal.[19] The answerer can also bring objections against the questioner's line of argument—for instance, he can argue that the questioner's argument is based on some fallacy—and in this way he can work actively at demolishing the questioner's argument.[20]

The disputation can be ended in several ways. The questioner may have all his premisses granted, and so succeed in establishing his conclusion. The answerer may destroy the questioner's argument by showing that it rests on a fallacy or by bringing other objections against it which the questioner cannot refute. Or the questioner may not succeed in establishing his thesis within a certain period of time. Aristotle says[21] that one kind of objection (ἔνστασις)[22] has to do with time. This kind of objection is not an objection directly about time; the answerer does not object that the time for the disputation has expired. Instead he presents an obstacle or impediment to the questioner's bringing the argument to a successful close by raising objections that take longer to deal with than the time available for the disputation. Aristotle clearly thinks of these disputations as having a certain time limit, but whether they are limited by an official rule, by custom, or by the stamina and patience of the participants is not clear.[23]

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18. *Top.* 160a23–33.
19. Cf. *Top.* 160b1–13 and 157a34–157b2.
20. Cf. *Top.* 160b23–161a15.
21. *Top.* 161a9–12.
22. It might be better to translate 'ἔνστασις' here not as 'objection' but rather as 'obstacle' or 'impediment.'
23. Paul Moraux in his "La Joute dialectique d'après le huitième livre des *Topiques*" (in *Aristotle on Dialectic, Proceedings of the Third Symposium Aristotelicum,* ed. G. E. L. Owen [Oxford: Clarendon Press, 1968]), p. 285 says, "Enfin, il est probable que les deux interlocuteurs n'avaient pas le droit de prolonger indéfiniment leurs débats, mais que les organisateurs pouvaient les interrompre, et peut-être même qu'ils avaient fixé d'avance une durée que la joute ne pouvait dépasser." For this opinion he cites only 158a25–30 and 161a9–12. But neither passage is evidence for Moraux's strong claim. The point of 161a9–12 is (as I have already pointed out) simply that some people bring up objections to a questioner that take more time to argue than is

Aristotle also gives the impression that the participants in a disputation are judged,[24] but it is unclear whether the judging is done by official judges, teachers, friends, or just casual bystanders.[25] A good questioner, Aristotle says, is one who succeeds in getting the answerer to grant the questioner's thesis or forces the answerer to say what is not readily believable in order to avoid granting that thesis;[26] and a good answerer is one who prevents the questioner from succeeding in his goals. If the answerer has to say what sounds strange, it should seem to be not his fault but rather a consequence of the thesis he is upholding.[27] It seems clear

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available for that particular discussion; it provides no evidence whatever for the view that time limits were set for the disputants by anyone. The point of 158a25–30 is that someone who keeps on asking one question for a long time is a bad questioner, and the passage seems altogether irrelevant to Moraux's claim. Gilbert Ryle shares Moraux's views on this subject. In *Plato's Progress* (Cambridge: Cambridge University Press, 1966), p. 196, he says, "The answerer is victorious if he has made no such admissions [that is, admissions inconsistent with his thesis] by the moment when time is up." In this passage he cites no evidence for his notion of a set time limit, but earlier (p. 105) he says, "The 'time's up' seems to be referred to in the *Topics* 161a10 and 183a25." The passage in 161a9–12, as I have just remarked, provides no evidence for a time limit's being *imposed* on the disputants. And 183a23–26 (actually in *Soph. El.*) seems to be making much the same point as 161a9–12: a solution sometimes takes more time than the period available for arguing it out. The claim Moraux and Ryle make about time limits, then, is simply unwarranted by the textual evidence they adduce.

[24] Cf., for example, *Top.* 161b16–18, 158a8–11, 162a8–9, 162b16–18.

[25] Moraux, "La Joute dialectique," p. 277, says, "il ne fait aucun doute que maîtres et disciples assistaient à ces tournois avec autant d'intérêt que notre jeunesse à des matches de boxe ou de football"; and, on p. 285, "Qui portera pareil jugement, sinon le maître et les disciples déjà formés qui auront assisté au tournoi?" For the second passage, he cites no textual evidence at all; for the first, he refers to *Topics* 160b21–22 and *Topics* VIII.11. The passage at 160b21–22 is "Men hate him who says such things [as that pleasure is the good], thinking not that he maintains them for the sake of the argument but that he says what he believes." *Topics* VIII.11 is a discussion of what makes arguments and arguers good or bad. Neither reference supports Moraux's claim about the nature of the judges of the disputation. Ryle's view is that disputations were officially decided by an audience (*Plato's Progress*, pp. 105 and 198). As evidence from Aristotle's writings, he cites (p. 198) *Topics* 1169b31 and 1174a37. The references are clearly mistaken; the highest Bekker number in the *Topics* is 164. It is possible that Ryle means to refer to *Soph. El.* 169b31 and 174a37. The first passage says, "The same things which make it seem to those listening as if the conclusion has been proved from the question asked make it appear so to the answerer as well"; and the second is "Sometimes people think that they have granted [a universal proposition] and appear to those listening to have done so, because they remember the induction." Neither of these passages is anything like sufficient evidence to show that the disputations of Aristotle's *τέχνη* were decided in some official way by their audiences.

[26] Cf. *Top.* 159a18–20.

[27] Cf. *Top.* 159a20–22.

that at least some disputants maintained theses other than those they held personally, arguing sometimes both sides of a problem and sometimes the theses of famous thinkers.[28] So Aristotle distinguishes between faults that belong to a thesis and faults that the defender of a thesis is responsible for. A questioner does his job badly if he argues fallaciously without realizing it or if he argues contentiously in any way.[29] The answerer is blameworthy if he refuses to grant what follows from something he has previously granted, if he is inconsistent in what he grants as true, if he refuses to grant what is quite apparently true, or if he argues contentiously.[30] The questioner and the answerer can also be judged on the relative difficulty of their tasks: it is easier to block than to construct the proofs for some things.[31] The argument itself is also judged. Some problems are much harder to argue than others;[32] and, in general, an argument is faulted for lacking cogency or elegance.[33]

Clearly, in order to be good at the sort of disputation that has been described here, both the questioner and the answerer must be capable of thinking up good arguments quickly. The sophists wanted to make their students adept at argument; and what they did, according to Aristotle, was to have their students simply memorize common arguments or sets of questions and answers. Aristotle, however, wants to teach not arguments but a method for arguing,[34] and the Topics are the heart of that method. It is by means of a Topic that a particular argument may be found in any given case.

One of the main difficulties in understanding Aristotle's *Topics* is that Aristotle devotes almost no attention to what a Topic is; he seems to assume that the meaning of 'Topic' as a technical term is familiar. He discusses Topics also in the *Rhetoric*, and perhaps rhetorical Topics were already commonly used by contemporary rhetoricians. Furthermore, Aristotle explains the usefulness of dialectical Topics by comparing them to mnemonic Topics, and it is possible that 'Topic' as a technical term originated and by Aristotle's time was well established in Greek arts of memory, where it meant one of the places in an edifice by means of which things memorized could be recalled.[35]

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[28] *Top.* 163a29–163b3 and 159b27–35.

[29] *Top.* 162b16–20, 161a33–34, 161b1–5.

[30] *Top.* 160b10–13, 161a17–19, 161b11–17.

[31] *Top.* 158a31–158b4.

[32] *Top.* 158b5ff. and 161b34–162a2.

[33] *Top.* 161b19–33, 162a24–34, 162b2ff.

[34] *Soph. El.* 183b36–184a8.

In any case, even though Aristotle does not explicitly explain the nature of a Topic, Books II–VII of the *Topics* are almost exclusively lists of Topics, and we can get an idea of what Aristotle thinks a Topic is by looking at the sorts of Topics he gives in those Books. Here are the first Topics from the first Book of the *Topics* in which specific Topics are given.

> (1) One Topic is to consider if [your opponent] has given as an accident what belongs in some other way. . . . For the predicate of a genus is never said paronymously of the species [of that genus], but all genera are predicated unequivocally of their species, for species take both the name and the formula of their genera. [109a34–b7]
>
> (2) Another [Topic] is to consider those cases in which [a predicate] has been said to belong to all or to none and to examine them by species and not in their infinite numbers, for then the examination will be better and in fewer stages. [109b13–15]
>
> (3) Another [Topic] is to make formulae of the accident and of that to which it belongs, either of both separately or of one of the two, and then examine if anything untrue has been taken as true in the definitions. . . . For so it will be clear whether what is said is true or false. [109b30–110a1]
>
> (4) Furthermore, [one ought to] make the problem into a dialectical proposition for oneself and raise an objection against it, for the objection will be an argument against the thesis. This Topic is almost the same as examining cases in which something is said to belong either to all or to none, but it differs in method. [110a10–13]
>
> (5) Furthermore, [one ought to] define what kinds of things one ought to call as the many call them and what kinds of things ought not to be so called, for this is useful both for establishing and for tearing down [a thesis]. [110a14–16]

In contemporary discussions of the *Topics* it is not uncommon to find Topic (1) and those like it taken as standard or representative Topics. Though analyses of Topics vary, they tend to begin by assuming such a presentation of a Topic. Walter de Pater, who has done the most useful, insightful, and thorough study of Aristotle's *Topics* I know of, puts it this way: "L'expression disant qu'il faut regarder quelque part . . . revient toujours dans la première par-

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35. *Top.* 163b28–32; for a discussion of the mnemonic Topics, see Introduction, above.

tie du lieu. Cette formule est une règle . . . qui indique à celui qui fait usage du lieu l'objet vers lequel il doit diriger son attention. La deuxième partie du lieu, précédée par le mot γάρ, dit ce qui *est;* elle est donc une loi. Plus précisément, elle est une loi logique ou (dans *Top.* iii. 1–4) une loi axiologique."[36] A very clear case exemplifying De Pater's view is this Topic: "If the species is a relative, [one must] examine whether the genus is also a relative; for if the species is a relative, the genus is also."[37] In this example, Aristotle is doing two things. First, he is giving a strategy or line of argument or tack to take in dealing with one's opponent in a dispute. The answerer, say, maintains that some particular species is a relative. The questioner, then, ought to consider whether the genus of that species is a relative; if it is not, then neither is the species a relative. Second, in the Topic Aristotle is giving a principle or a law that explains or justifies the strategy: whenever a species is a relative, its genus is also a relative.

It is not clear in this case whether Aristotle thinks that both the strategy and the principle are the Topic or only one or the other, and there is further reason for uncertainty. Aristotle gives many Topics that are only lines of argument and many others that are only principles. For example, in 120b36-37 Aristotle says, "[You must see] if the genus and the species are not in the same [category], but one is a substance and the other a quality, or one a relative and the other a quality." Here, unlike the example in the preceding paragraph, the statement of the strategy is not followed immediately by a γάρ clause containing a principle; sometimes, as in the example given here, a corresponding principle occurs later in the discussion, but the strategy alone is called the Topic.[38] In other places, the situation is reversed, and the Topics are principles alone. In 117b10–11, for example, Aristotle gives this Topic: "Another Topic: what is nearer to the good is better and more worthy of choice and also what is more like the good." In such cases, the strategy tends not to be given at all.

Of the two ancient commentators on the *Topics* whose work is extant, Theophrastus thinks that a Topic consists only in a principle and not in the corresponding strategy as well; and Alexander of Aphrodisias thinks that both the strategy and the principle are equally Topics, though he thinks the strategy is called 'Topic' derivatively from its frequent association with the principle.[39] De Pater's account, then, agrees with that of the Greek commentators; his interpretation is allied with Theophrastus's views, and such an account is not uncommon among modern scholars.[40] But I think a case can be made on the other side. I think that Aristotle considers a Topic primarily as a strategy for arguing, though it is a strategy that will work, and work in many cases because it is founded on some basic principle.

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[36] De Pater, "La Fonction du lieu et de l'instrument dans les *Topiques*," in *Aristotle on Dialectic*, ed. Owen, p. 165.

[37] *Top.* 124b15–16.

[38] Cf., for example, Topic (1) above; for the principle corresponding to the example given here, cf. 121a5–7.

If we look at the first five Topics from Book II given above, we can see that the Topic consisting in "règle" and "loi logique" is *not* standard. Topic (2) begins with a rule or strategy, but what follows in the γάρ clause is "then the examination will be better and in fewer stages," which is hardly a logical law. Similarly, Topic (3) begins with a strategy, but the only significant γάρ clause attaching to the strategy can scarcely be considered a logical law: "For so it will be clear whether what is said is true or false." Topics (4) and (5) also are only strategies and have no adjoined logical law. The γάρ clause in (4) is simply "the objection will be an argument against the thesis," and in (5) it is "this is useful both for establishing and tearing down [a thesis]." Of these five Topics, then, only one has the form of strategy and logical law. Even in that one, Topic (1), the logical law or principle is considerably separated in the text from the strategy, and only the strategy is called the Topic. All five Topics, though, include a strategy.

De Pater deals with observations of this sort by saying, "il s'agisse de lieux en un sens plus faible."[41] He divides Topics into those that are Topics "au sens strict," which always contain or consist in a principle, and those "au sens faible," which may consist in nothing but a strategy. De Pater readily admits that Aristotle did not explicitly make such a distinction, but he thinks it is necessary to do so if we are to give a coherent interpretation of an Aristotelian Topic. Though I think De Pater is right in thinking that we must take into consideration those Topics explicitly called Topics and consisting in strategies alone, his method of dealing with them seems simply to define them out of account; and I think it is possible to give a consistent description of an Aristotelian Topic without doing so.

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[39] Alexander of Aphrodisias, *In Aristotelis Topicorum*, in *Commentaria in Aristotelem Graeca (CAG)*, ed. Maximilian Wallies (Berlin: G. Reimer, 1891), sup. vol. II, pt. ii, p. 5.21ff. and p. 126.12ff. For further discussion of the commentators, see the essay "Between Aristotle and Boethius."

[40] Cf. De Pater, "La Fonction du lieu," p. 174. For scholars who agree with De Pater, see, for example, Eugène Thionville, *De la Théorie des lieux communs dans les Topiques d'Aristote* (Paris, 1855; reprinted Osnabrück: Zeller, 1965), pp. 30ff.; and Friedrich Solmsen, *Die Entwicklung der aristotelischen Logik und Rhetorik* (Berlin: Weidmann, 1929), pp. 163–166. Solmsen's account has a somewhat different emphasis in his article "The Aristotelian Tradition in Ancient Rhetoric," in *Rhetorika*, ed. Rudolf Stark (Hildesheim: G. Olms, 1968). Cf. also William Grimaldi, *Studies in the Philosophy of Aristotle's Rhetoric* (Wiesbaden: F. Steiner, 1972), pp. 117–119.

[41] "La Fonction du lieu," p. 174.

First, the form of Topics (1)–(5) above is typical of that in the rest of the treatise. In the presentation of a Topic, even in those cases in which it includes both a strategy and a principle, Aristotle consistently says that the Topic is the strategy; the principle is added in a γάρ clause to explain or support the strategy. Second, all the examples I have found of Topics given as principles alone come from Book III. But in that Book, only one sort of dialectical problem is under consideration, namely, whether one of two things is better or more worthy of choice than the other; and *one* strategy governs the whole Book, which Aristotle gives at the very beginning of the Book: "Our inquiry has to do . . . with things that are closely related and concerning which we dispute . . . because we do not see any superiority of the one over the other. So it is clear . . . that if one or more points of superiority is shown, the mind will agree that *this,* whichever of the two happens to be superior, is more worthy of choice."[42] How does one get one's opponent to agree when the question is which of two things is better or more worthy of choice? Aristotle gives one sensible strategy at the outset: find some point of superiority of the one over the other. Having provided this general strategy, Aristotle throughout the rest of the Book contents himself with describing various principles about what makes one thing superior to another. Third, it is important to notice the general emphasis of the *Topics.* The eighth Book, which deals with the disputation itself and with methods for getting the better of one's opponent, is in keeping with what goes before. The preceding discussions of individual Topics are couched in terms of disputation rather than abstract logic or metaphysics; the discussion of a Topic is not an elaboration of a principle, explaining the logical relations involved in the principle, but has to do rather with what one's opponent has done and what can be said against him in consequence. The following discussion of a Topic is typical:

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[42] *Top.* 116a4–12.

> Again, if an accident which has a contrary is asserted, you must look to see whether what admits of the accident admits also of its contrary, for the same thing admits of contraries. For example, if your opponent has said that hatred follows anger, then hatred would be in the spirited faculty; for anger is in that faculty. You must, therefore, look to see whether its contrary, namely, friendship, is also in the spirited faculty; for if it is not there but in the appetitive faculty, then hatred cannot follow anger. Similarly, too, if he has declared that the appetitive faculty is ignorant; for if it were ignorant, it would also be capable of knowledge, and it is not a generally accepted opinion that the appetitive faculty is capable of knowledge.[43]

So I think that in the *Topics* a Topic is at least primarily a strategy for argument, a strategy not infrequently justified or explained by a principle.

In the *Rhetoric*, Aristotle makes two significant additions to the discussion of Topics as it occurs in the *Topics*.

First, he divides Topics into those that are common and those that are proper. Common Topics are those that will work equally well for a disputation or speech about any subject; proper Topics are those that function only in a disputation or speech about some particular subject, so that there are Topics proper to ethics, Topics proper to physics, and so on.[44] Though the distinction is not mentioned explicitly in the *Topics*, in the *Rhetoric*[45] Aristotle says that this distinction is common to both the *Topics* and the *Rhetoric*. Possibly, for Aristotle, a Topic that is a principle alone is a proper Topic and a Topic including or consisting in a strategy is a common Topic. De Pater argues that the Topics in Book III of the *Topics* are all proper rather than common Topics because, he says, they are the same as the Topics given in *Rhetoric* I.vii as proper Topics.[46] De Pater does not cite any passages from the *Rhetoric* in which the principles in *Rhetoric* I.vii are explicitly called Topics, and I have not been able to find any such passage. Instead, De

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[43] *Top.* 113a33–b6.

[44] Cf. *Rhet.* I.ii.21–22 (1358a10–35).

[45] *Rhet.* I.ii.22 (1358a29–30).

[46] "La Fonction du lieu," p. 180.

Pater quotes Aristotle's identification of at least certain sorts of principles with *εἴδη*, and he argues that for Aristotle *εἴδη* and proper Topics are the same. Hence, if the principles in *Rhetoric* I.vii are *εἴδη* (as they seem to be), they are Topics. But, as De Pater admits, the evidence for whether or not *εἴδη* are proper Topics appears contradictory; and in one place Aristotle seems to distinguish principles, especially the group including those in *Rhetoric* I.vii, from Topics. In II.xxii.16 (1396b28–33), just as he is about to present the major discussion of Topics in the *Rhetoric,* Aristotle says that because he has earlier given propositions relating to the good and bad, noble and shameful, just and unjust, and so on; he has, in effect, already provided Topics on these subjects.[47] Aristotle seems to be saying that earlier in the book he has given propositions or premisses (*προτάσεις*), not Topics; but that, in virtue of having provided such propositions, he has established for his reader the appropriate Topics for the subjects in question. The propositions he is referring to are those given in I.vi.lff. (1362a15ff.), and very many of them are what I have been calling principles. If Topics *are* principles, at least sometimes, then there seems to be no point to Aristotle's remark; he could have said merely that the Topics for the subjects in question had been given previously.

Second, Aristotle defines a Topic in the *Rhetoric.* A Topic, he says, is an element encompassing many enthymemes: "I mean the same thing by 'element' and 'Topic,' for an element or a Topic is that within whose province many enthymemes fall."[48] But this second addition to the theory of Topics is not of much more help than the first for determining whether a Topic is primarily a strategy or a principle or for understanding the art in the *Topics.* It is hard to know precisely what Aristotle means by 'element' (*στοιχεῖον*),[49] especially as applied to dialectic and rhetoric; and enthymemes might equally well be thought to fall within the province of a principle or a strategy.

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[47] *"σχεδὸν μὲν οὖν ἡμῖν περὶ ἕκαστον τῶν εἰδῶν τῶν χρησίμων καὶ ἀναγκαίων ἔχονται οἱ τόποι·ἐξειλεγμέναι γὰρ αἱ προτάσεις περὶ ἕκαστόν εἰσιν, ὥστε ἐξ ὧν δεῖ φέρειν τὰ ἐνθυμήματα τόπων περὶ ἀγαθοῦ ἢ κακοῦ . . . ὡσαύτως, εἰλημμένοι ἡμῖν ὑπάρχουσι πρότερον οἱ τόποι."*

[48] *"τὸ γὰρ αὐτὸ λέγω στοιχεῖον καὶ τόπον· ἔστιν γὰρ στοιχεῖον καὶ τόπος εἰς ὃ πολλὰ ἐνθυμήματα ἐμπίπτει." Rhet,* II.xxvi.1 (1403a17–18).

[49] For a preliminary study of the term, see Walter A. De Pater, *Les Topiques d'Aristote et la dialectique platonicienne: La methodologie de la définition* (Fribourg: Editions St. Paul, 1965), pp. 110–115.

As for what Aristotle explicitly calls Topics in the *Rhetoric,* they are of this sort: "One Topic for demonstrative enthymemes is from opposites; for it is necessary to see if an opposite belongs to an opposite. . . . For example, temperance is good, for incontinence is harmful."[50] Or, again, "Another Topic is from a judgment concerning the same or a similar or an opposite case";[51] or, "Another [Topic is this]: since in most things it happens that some good and bad accompanies the same thing, one can persuade or dissuade, accuse or defend, and praise or blame on the basis of what results from [the thing being discussed]."[52] These Topics are all strategies rather than principles, though as in the second example, the strategy is not completely spelled out; almost all the Topics Aristotle gives for enthymemes are clearly of the same sort.[53]

So I think that the evidence in the *Rhetoric,* too, tends to indicate that a Topic is primarily a strategy rather than a principle and confirms the similar impression gained from the *Topics.*[54] Part of the importance of this conclusion is that it ties the concerns of the Topics more closely to the context of disputation, making it less a peculiar treatise on logic than a handbook on how to succeed at playing Socrates; and this view of the *Topics* will make a difference in the way we understand the art it wants to teach. Clearly, however, a strategy and its corresponding principle are very closely related: once one has chosen a particular principle, one is committed to certain strategies, and a particular strategy may require certain principles.

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[50] *Rhet.* II.xxiii.1 (1397a7–10). By 'demonstrative enthymeme' Aristotle seems to mean a constructive rather than a destructive enthymeme; in *Rhet.* II.xxii. 14–15 (1396b23–27), he says, "Demonstrative enthymemes differ from refutative enthymemes as syllogism and refutation differ in dialectic; the demonstrative enthymeme draws conclusions from premises agreed to [by the opponent], but the refutative enthymeme draws conclusions which have been in dispute."

[51] *Rhet.* II.xxiii.12 (1398b21). [52] *Rhet.* II.xxiii.14 (1399a11–14).

[53] Cf. *Rhet.* II.xxii.13–II.xxiii.30 (1399a7–1400b33).

[54] But cf. De Pater, "La Fonction du lieu," and *Les Topiques d'Aristote,* pp. 140ff. According to De Pater ("La Fonction du lieu," p. 173), a Topic is "une formule de recherche," either "des propositions" (principles) or "des types (classes) de propositions (*loci a persona* ou 'lieux des contraires')." He thinks that in the *Topics* a Topic is "une formule de recherche en tant qu'il est une règle," whereas in the *Rhetoric* it is "une formule de recherche en tant qu'il est une loi . . . ou du moins en tant qu'il n'est pas formulé comme une règle" (ibid.). Surprisingly, in "La Fonction" De Pater considers only the passage in Book I of the *Rhetoric,* where it is not at all clear that Aristotle is presenting Topics, and he leaves altogether out of account the passages in Book II in which Aristotle talks directly about Topics. Consequently, De Pater cites the lack of strategies in the *Rhetoric*'s presentation of Topics as evidence for his view that a Topic is a law or principle. Even in the *Topics,* he concludes, "le lieu . . . est une formule de recherche non pas en tant qu'il est formulé comme une règle, mais déjà en tant qu'il est une loi. En d'autres termes: la règle explicite la loi; celle-ci suffirait" (ibid.). But thinking of the Topics in the *Rhetoric* as *laws,* if it is not to seem simply flying in the face of the evidence, requires justification and explanation which De Pater does not supply. For a recent discussion of De Pater's work, see H. Roelants, "De methodologie van de *Topika,*" *Tijdschrift voor Filosofie,* 28 (1966), 495–517, and the excellent study by Jürgen Sprute, "Topos und Enthymem in der aristotelischen Rhetorik," *Hermes,* 103 (1975), 68–90.

How an individual Topic functions in finding arguments is not hard to determine.[55] A Topic is, as Theophrastus says, definite in outline but indefinite in regard to particulars;[56] that is, a Topic is a general statement (or strategy) that can cover many specific cases. Take, for example, one of the Topics mentioned earlier: "[You must see] if the genus and the species are not in the same [category], but one is a substance and the other a quality, or one a relative and the other a quality. . . . To speak generally, the genus must be under the same category as the species."[57] This Topic can be used to refute a number of arguments, namely, all those in which the opponent maintains that one thing is the genus of something else and the two things in question fall into different categories. Aristotle gives an example in the same passage. Suppose the arguer's opponent maintains that knowledge is a species of what is good; the arguer chooses the strategy of seeing whether the putative genus and species fall into the same category, and he sees that they do not. Then he makes his argument as follows. He gets the opponent to admit first that goodness is a quality and then that knowledge is a relative; he then brings the argument to a conclusion by implicitly or explicitly using the principle that a species and its genus must be in the same category. Depending on the relative obscurity of the principle and the obtuseness of the opponent, the principle may or may not be an explicit part of the argumentation; and, of course, not every strategy requires a particular principle.

A Topic, then, is something like a basic recipe or blueprint, according to which one can produce many things the same in structure but differing in detail and in material. Only a few, or perhaps even only one, of these blueprints for argument will serve to produce an argument for a given dialectical problem. For example, the Topic having to do with genus and species being in the same category will not produce a refutation if the genus and species in question are in the same category or if the question is not about genus and species. Faced with a particular problem for which he wants to find an argument, the arguer must apparently go through the various Topics in his mind to find one that will work for his problem; and, since Aristotle gives several hundred Topics in the *Topics*, the procedure for finding arguments seems unwieldy. One is tempted to think that, though Aristotle has not given his students simply a variety of finished products in lieu of an art, like the Sophists he disapproves of,[58] still, what he has done amounts only to giving his students a boxful of blueprints for producing such finished products. Such an impression, I think, is erroneous.

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[55] For a detailed but, I think, mistaken account of the way in which a Topic functions, see De Pater, *Les Topiques d'Aristote*, pp. 93–100, 129–139, 147–150.

[56] "*τῇ περιγραφῇ μέν ὡρισμένος . . . τοῖς δὲ καθ'ἕκαστα ἀόριστος*"; in Alexander of Aphrodisias, *In Top.*, *CAG;* II, pt. ii, pp. 5.2ff.

[57] *Top.* 120b36–121a7.

It is clear that the Topics are generally ordered according to the predicables. Topics useful for problems where the predicate is an accident are discussed in Books II–III; Topics involving genus and property are found in Books IV and V respectively; and Books VI–VII contain Topics involving definition. If Aristotle's *Topics* seems like a boxful of blueprints, it is, at any rate, equipped with indexing tabs. Once the arguer has determined which predicable is being used in his problem, he has specified the section of the *Topics* in which Topics appropriate to his problem are found. Still, the unwieldiness of this method is only a little reduced.

But what has been frequently overlooked is that the Topics on a particular predicable are ordered, too. In Book IV containing Topics about genus, for example, principles associated with Topics from the first part of the Book are of this sort:[59]

(1) The genus is predicated of everything under the same species. [120b 19–20]
(2) The genus must be under the same category as the species. [121a5–7]
(3) The species admits the definition of the genus, but the genus does not admit the definition of the species. [121a13–14]

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[58] *Soph. El.* 183b36–184a8.

[59] I pick principles rather than strategies or strategies combined with principles to compare here because the principles alone are shorter and more quickly and easily brought together to provide an overview.

(4) Whatever the species is predicated of, the genus must also be predicated of. [121a25–26]
(5) What partakes of the genus must also partake of one of the species [of that genus]. [121a34–35]

Those in the middle of the Book are different:

(1) The genus and the species are synonymous.[60] [123a28–29]
(2) Every genus is predicated of its species in its proper [that is, unmetaphorical] sense. [123a34–35]
(3) The contrary species must be in the contrary genus, if there is a contrary to the genus. [123b6–7]
(4) If the genus is contrary to something, so is the species. [123b31–32]

The Topics in the last part of the Book frequently do not have accompanying principles; what principles there are tend to be of this sort:

(1) There are some things which cannot be placed in one genus [only]. [126b8]
(2) There are several things which accompany everything; for example, being and oneness are among those that accompany everything [and what accompanies everything cannot be a genus]. [127a27–28]
(3) [When both the genus and species have contraries, and one contrary is better than another in each case], it is generally held that the genus of the better species is also the better genus. [127b12–13]

This ordering of the Topics within a Book can be interpreted or characterized in different ways. Eugène Thionville, who apparently originally discovered this ordering, characterized it as "d'abord les lieux qui proviennent de la nature du prédicable en question; ensuite ceux des choses inhérentes au sujet ou à l'attribut traité (son antécédent, son conséquent, ses inflexions et coordonnés), et finalement ceux du rapprochement avec d'autres sujets ou attributs (les contraires, les comparaisons)."[61] De Pater criticizes Thionville's ordering as inaccurate, and suggests the following order: "d'abord les lieux qui se tirent de la nature du prédicable, et ensuite les lieux les plus utiles [for example, Topics from opposites or from the more and the less]."[62]

But perhaps we should look at these different groups of Topics as at least some of the Greek commentators and Latin rhetoricians who discussed Topics did. In light of the Ciceronian and Themistian treatments of the Topics, we might look at the ordering of Topics within a Book as intrinsic, intermediate, and extrinsic.[63] First are the Topics that depend in some way on the nature of the predicable in question; for example, a genus must be in the same category as its species, or, the genus must be predicated of all the things its species is predicated of. These are intrinsic Topics. Then there are Topics that in part have to do with the nature of the predicable but in part also with something outside the predicable. A Topic such as the one that genus and species share a name (are synonymous) seems to be intermediate. Last, there are those Topics that are not about the basic nature of the predicable but instead give peculiarities of the particular predicable or corollary rules about its use.

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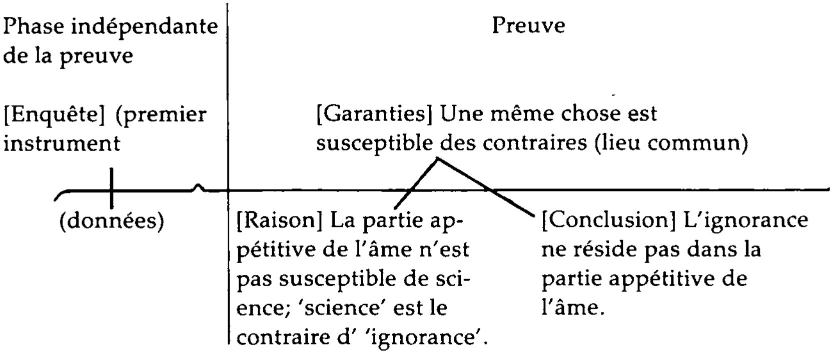
[60] That is, they share a name that has the same definition in each case; see *Cat.* 1a6ff.

[61] As De Pater puts it in *Les Topiques d'Aristote*, p. 206; cf. Thionville, *De la Théorie des lieux communs*, p. 63.

[62] De Pater, *Les Topiques d'Aristote*, p. 206.

Whatever the precise characterization of the order of Topics within a Book, there clearly is some order and it includes a movement from Topics closely related to the nature of the predicable to those related only tangentially.

Seeing this order gives us, I think, an important key to the τέχνη in the *Topics*. Previous interpretations of the Topics have included a complicated process for employing Topics. De Pater gives the following analysis of an argument using a Topic:[64]



Phase indépendante de la preuve

Preuve

[Enquête] (premier instrument

[Garanties] Une même chose est susceptible des contraires (lieu commun)

(données)

[Raison] La partie appétitive de l'âme n'est pas susceptible de science; 'science' est le contraire d' 'ignorance'.

[Conclusion] L'ignorance ne réside pas dans la partie appétitive de l'âme.

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[63] See the essay on Boethius below. The use Boethius makes of these terms is slightly different from the use I make of them here. For Boethius, a Topic is intrinsic if, for example, it has to do not with the nature of the *predicable* in question (for example, genus) but rather with the nature of the *specific instance* of the predicable (for example, animal).

[64] "La Fonction du lieu," p. 187.

It is important to notice two things about this interpretation of the τέχνη in the *Topics*. First, the primary function of a Topic in this scheme is not in *finding* arguments but in *validating* them. De Pater assigns some heuristic function to a Topic, but it is the minor one of aiding the instrument to find the *"données."* The chief role of a Topic is probative. A Topic is employed in De Pater's scheme not to discover the *"raison"* for the conclusion or the conclusion itself but to "guarantee" the *inference* from the *"raison"* to the conclusion. But the ancient tradition growing out of Aristotle's *Rhetoric* and *Topics* clearly assigns the Topics to *inventio,* to the job of finding rather than judging or validating arguments.[65] And it makes sense that the function of a Topic should be discovery. The Topics are the heart of a method intended to make a man a ready arguer, good at both the questioner's and the answerer's roles in a dialectical disputation. It is not so clear how being able to validate the passage from premisses to conclusion will make a man good at dialectical questioning and answering, but it is perfectly plain that the ability to find arguments will do so.

Second, though De Pater's scheme of reasoning is complicated and neat, the dialectical art that corresponds to it is the opposite. Since on De Pater's view Topics are general principles whose function is to validate arguments and the *Topics* amounts simply to a boxful of such principles, the τέχνη which the *Topics* claims to present is basically just the unwieldy method I described earlier. A person who wants to argue for a certain dialectical thesis will go through the three hundred or four hundred Topics in Aristotle's list until he finds one that suits his conclusion and then will build his argument around that Topic. The division of the list according to the predicables and the ordering within each of the four groups reduces the unwieldiness of this method only a little. Furthermore, a good deal of a dialectical disputation involves extemporaneous arguing, since one cannot know ahead of time what line his opponent will argue; and the cumbersomeness of this method makes it hard to see how it can help with extemporaneous arguments at all.

But once we have seen Aristotle's emphasis on the predicables, I think we can sketch another interpretation of his τέχνη. According to Aristotle, every dialectical problem, question, and conclusion is predicative or reducible to one that is predicative, and arguing for a dialectical conclusion will consist in showing that the predicate is or is not a predicate of the subject at issue.[66] Every predicate is subsumed under one or another of the predicables, and the list of Topics is grouped according to the four predicables. Within the group for each predicable, the Topics are ordered by the degree to which they have to do with the nature of the predicable of that group. So what we seem to have in the *Topics* is a kind of complicated lore of predicables. The ordered lists of Topics can be thought of as manifesting or teaching the essence and accidents of each of the predicables. A genus, for example, has a certain nature. It is predicated of *every* member of the species falling under it. It is always part of the essence of whatever it is predicated of. And so on. In addition, it has certain accidents and peculiarities. It shares a name (is synonymous) with its species. It cannot accompany everything. If two species are contraries and one is better than another, the genus of the better species is the better genus. And so on. Book IV of the *Topics,* from which these observations about genus are drawn, will make a careful reader so familiar with the character of genus that he will readily recognize when a given predicate in a thesis is a genus and when it is not.

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[65] Cf. Solmsen, "Aristotelian Tradition," pp. 331–337.

It would be foolish to make use of the *Topics* by trying to memorize all the Topics in the treatise and then searching one's memory for the appropriate Topic to use on any given occasion; one would then be treating the *Topics* as if it were an indexed but unwieldy boxful of blueprints for arguments. But one can use the *Topics* to become thoroughly familiar with the nature of the predicables and the way they work. With such a thorough grasp on the predicables, one can dispense with blueprints. Because one understands the nature of the predicables, strategies and principles having to do with them will suggest themselves naturally. Since all dialectical problems involve predicables, a man familiar with the nature and behavior of the predicables will be able to find arguments quickly, and so he will be able to argue well extemporaneously, as he needs to do in a dialectical disputation. If Aristotle's Topics are learned and understood, then, they do constitute a τέχνη for dialectical disputation.

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[66] *Top.* 101b15–36, 103b1–19.

2

Dialectic and Boethius's *De topicis differentiis*

De topicis differentiis[1] (*De top. diff.*) is an advanced treatise on Topics that builds on Boethius's *In Ciceronis Topica* (*ICT*).[2] *De top. diff.* is Boethius's attempt to present a definitive work on Topics and to produce a cogent method for discovering arguments. He explains two main divisions of dialectical Topics, Cicero's and Themistius's, and reconciles one with the other; he also expounds rhetorical Topics and shows their differences from and similarities to dialectical Topics.[3] The first Book of *De top. diff.* is a general introduction, containing definitions and discussions of key terms. The next two Books contain his treatment of dialectical Topics. Book II describes Themistius's division of the Topics and gives examples for each of his twenty-eight Topics. In Book III, Boethius expounds Cicero's division, much as he did Themistius's in the preceding Book; he completes the Book by comparing and reconciling the two divisions. The fourth Book is completely devoted to rhetorical Topics, explaining what they are and comparing them with dialectical Topics. It includes a theoretical discussion of the nature of rhetoric, which Boethius claims is original work and not to be found in his sources.

In this essay, I will not consider rhetorical Topics.[4] They are very different from the dialectical Topics of Cicero or Themistius—

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[1] Ed. J. P. Migne, *Patrologia Latina*, LXIV, 1173–1216.

[2] *PL*, LXIV, 1039–1174; *Ciceronis Opera*, ed. J. C. Orelli and G. Baiterus (Zurich: Fuesslini, 1833), V, pt. I. References to this treatise will be given for both the Orelli and the *PL* editions.

[3] For background information on *De top. diff.* and for Boethius's views of dialectic, see the Introduction to my *Boethius's De topicis differentiis* (Ithaca, N.Y.: Cornell University Press, 1978).

[4] For some discussion of the rhetorical Topics, see my notes to Book IV of *De top. diff.* in ibid.

or of Aristotle—and require a completely separate treatment. The dialectical Topics are so complicated and difficult, and so little has been written by modern scholars on Boethius's understanding of dialectic, that it is enough for this work to provide a preliminary analysis of Boethius's dialectical Topics.

Unlike Aristotle, Boethius recognizes two different types of Topics. First, he says, a Topic is a maximal proposition (*maxima propositio*), or principle; but there is a second kind of Topic, which he calls the differentia of a maximal proposition, or just Differentia.[5] Both 'maximal proposition' and 'Differentia' are technical terms that will be explained in detail in this essay. The Differentiae are the real instruments of Boethius's art of finding arguments; but maximal propositions are also important; and Boethius begins his theoretical discussion of the Topics[6] by explaining what a maximal proposition is and showing how it functions.

Boethius thinks maximal propositions are what Aristotle calls Topics.[7] When Aristotle gives a Topic, he generally presents both a strategy for argumentation and a principle. Some interpreters of Aristotle's Topics, such as Theophrastus, consider only the principles to be Topics; others, such as Alexander of Aphrodisias, think Aristotle means both the strategy and the principle to be Topics; and it is not impossible that Aristotle understood the strategies alone to be the real Topics.[8] In suggesting that maximal propositions are Aristotle's Topics, Boethius is in effect allying himself with Theophrastus's interpretation. And, I think, Boethius begins his treatment of dialectical Topics by discussing maximal propositions, even though his main interest is in the Differentiae, at least in part because he wants to begin with what he understands as the traditional, Aristotelian method before he gives the newer method that relies on the Differentiae.

Boethius takes pains to make clear what a maximal proposition is. In *De top. diff.* 1185A8–B5, he says:

> There are some propositions which not only are known per se but also have nothing more fundamental by which they are demonstrated, and these are called maximal and principal [propositions]. And there are others for which the first and maximal propositions provide belief. So of

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[5] I am capitalizing 'differentia' when it is used to refer to a Boethian Topic to avoid confusion with differentia as one of the predicables.

[6] *De top. diff.* 1185A3ff.

[7] *ICT* 282.44-283.2 (*PL* 1054B2–6).

[8] See my discussion in the preceding essay on Aristotle.

> all things which are brought into question, the very first to be agreed to must be those which can provide belief for other things in such a way that nothing more known than they can be found. For an argument is what produces belief regarding something which is in doubt, and it ought to be more known and more readily believable than what is proved. Hence, those maximal [propositions] known per se so that they need no proof from without must impart belief to all arguments.[9]

So maximal propositions are truths known per se, or self-evident truths. They are not proved by any other propositions, and knowledge of them is not derived knowledge, drawn from other known propositions; they are, as Boethius would say, more known than any other propositions.

Maximal propositions have two major functions in argumentation. To see what those functions are, it will be helpful to examine and dismiss a plausible misconception of their function.

So far, Boethius seems to mean that the role of maximal propositions in argumentation is to ensure the truth of a conclusion by ensuring the truth of its premisses either directly or indirectly; and here Boethius seems to be relying on Aristotle's theory of demonstration. Aristotle holds that most knowledge comes from previously acquired knowledge. The premisses of an argument intended to produce knowledge must be better known than the conclusion, or they could not constitute evidence for what is in doubt, and the premisses of one such argument may be the conclusions of other arguments. But unless there is an infinite regress, there must be some starting point for the hierarchy of things known, and there cannot be an infinite regress if there is to be knowledge. In other words, there must be propositions known not by being proved from other, better-known propositions, but by being known per se. Such propositions are the source for all demonstration because all other known propositions are derived directly from propositions known per se or from other propositions that are so derived.[10] Each science has its own set of truths known

[9] "*Nam cum sint aliae propositiones quae cum per se notae sint, tum nihil ulterius habeant quo demonstrentur, atque hae maximae et principales vocentur, sintque aliae quarum fidem primae ac maximae suppleant propositiones, necesse est ut omnium quae dubitantur, illae antiquissimam teneant probationem, quae ita aliis facere fidem possunt, ut ipsis nihil notius queat inveniri. Nam si argumentum est quod rei dubiae facit fidem, idque notius ac probabilius esse oportet quam illud est quod probatur, necesse est ut argumentis omnibus illa maxima fidem tribuant, quae ita per se nota sunt, ut aliena probatione non egeant.*"

[10] Cf. *An. Pos.* 71a1–72b25.

per se that are fundamental to it and are not demonstrable by any propositions within the science in question or (except in the cases of subaltern sciences) by any propositions from other sciences.[11] By deriving conclusions from these truths known per se, the science arrives at the body of knowledge proper to it.

Boethius's maximal propositions seem to be just such self-evident truths. All true propositions, Boethius seems to be saying, are either self-evident or not self-evident; those that are not self-evident are shown to be true by being traced back to self-evident propositions. Hence, self-evident propositions provide the basis of belief for all argument. The conclusion of an argument is derived either from a maximal proposition or from propositions that are themselves derived, directly or indirectly, from maximal propositions. So Boethius seems to mean to teach the finding of arguments by teaching what look like Aristotle's axioms or first principles of the sciences; given the first principles of each science, from which the rest of the science is derived, one should be able to find arguments regarding whatever is in question.

But if the account of Topics that I have been sketching were correct, then the art of Topics would begin to collapse into demonstration; the art of finding arguments would be the art of producing a proof of some proposition from the first principles of the science appropriate to that proposition. As Boethius[12] and Aristotle[13] both clearly indicate, however, the art of Topics belongs to dialectic; and dialectic and demonstration are very different, as Boethius himself is keenly aware. In the introductory Book of *De top. diff.*, he spends some time elaborating on the difference,[14] sketching, for example, the different aims of the "demonstrator" (philosopher) and the dialectician, and explaining the different sorts of argument appropriate to each of the two. He points out that the art of Topics is useful primarily to the dialectician but that the demonstrator will find it helpful as well, and he supports his point by explaining what sorts of argument the Topics provide. In light of his elaborate distinction between dialectic and demonstration and his detailed explanation showing that the Topics belong primarily to dialectic, it is not sensible to suppose that Boethius means maximal propositions to function in argumentation as Aristotelian first principles; and, consequently, the account of Topics as axioms of the sciences is not viable.

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[11] Cf. *An. Pos.* 75b37–76a30.

[12] Cf. *De top. diff.* 1182B5–15.

[13] *Top.* 100a18-25.

[14] 1181C10-1182C12.

How, then, do the Topics function in argumentation? After his theoretical discussion of maximal propositions (quoted in part above), Boethius gives an example to make his point clear: "Suppose the task is to demonstrate that an envious man is not wise. An envious man is one who disparages the good of others. But a wise man does not disparage the good of others. Therefore, an envious man is not wise. . . . belief for this syllogism is provided by that proposition by which we know that things whose definitions are different are themselves also different." [15]

Here it is possible to make another very misleading mistake. Boethius gives the premisses of the argument in the example as indefinite propositions. Indefinite propositions may be read either as universal or as particular; so the first premiss of the argument may be taken to mean either 'Every envious man disparages the good of others' or 'Some envious man disparages the good of others.' We know, however, that the argument has to do with the definitions of the things being discussed, and definitions are never particular. So it is tempting to suppose that Boethius means his indefinite premisses to be read as universals and that the argument is a syllogism with one negative and one affirmative universal premiss; that is, it is tempting to read the argument in the example as if it were this:

(1) No wise man disparages the good of others.
(2) Every envious man disparages the good of others.
(3) Therefore, no envious man is wise.

This argument, as Boethius unquestionably knows, is a valid, second-figure Aristotelian syllogism (Cesare); so the maximal proposition is not needed for the validity of the argument. In this case, furthermore, the maximal proposition—"Things whose definitions are different are themselves also different"—clearly is not a principle on which either the first or the second premiss is based; it does not ensure the truth of either (1) or (2). On this interpretation, then, the maximal proposition seems to have no role to play in the argumentation; it is not required as a rule of inference, and it is no evidence for the truth of either premiss.

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[15] 1185C10-D3. *"Sit propositum demonstrare quoniam invidus sapiens non est. Invidus est qui alienis affligitur bonis; sapiens autem bonis non affligitur alienis; invidus igitur sapiens non est. . . . Est enim huic syllogismo fides ex ea propositione per quam cognoscimus, quorum diversa est diffinitio, ipsa quoque diversa esse."* Contemporary usage tends to take 'definition' to mean the defining proposition; ancient and medieval usage, on the other hand, often takes 'definition' to mean the predicate of a defining proposition. To avoid complicating the terminology, I am using 'definition' in a systematically ambiguous way.

Such a result should show that it is a mistake to neglect the indefinite quantity of the premisses in the argument as Boethius gives it. The argument as it occurs in the text is not a syllogism in Cesare and does need its maximal proposition in order to be valid. If we keep Boethius's premisses indefinite, the argument he gives amounts to this:

(4) *One who disparages the good of others* is a definition of envious man.
(5) A wise man does not disparage the good of others.
(6) Every definition is predicated (primarily) of its species and (secondarily) of every individual under that species.
(6^1) Therefore, *one who disparages the good of others* is not a definition of wise man.
(6^2) Everything that is defined has one and only one definition.[16]
(7) Therefore, the definition of envious man is different from the definition of wise man.
(8) Things whose definitions are different are themselves also different.
(9) Therefore, an envious man is not wise.

(8) is, of course, the maximal proposition; and in this analysis of the argument, in which Boethius's premisses are kept indefinite, it is necessary for the validity of the argument.[17]

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[16] Premisses (6) and (6^2) are taken from standard ancient views of definition.

[17] This argument is much more complex than it appears to be, and whether it is really valid is unclear. It is enough for my purposes in this essay to show how the maximal proposition functions on Boethius's view if the quantity of the premisses is not altered, but I want to sketch here a few of the difficulties with this argument. First, from (4) to (7), the argument seems to be about species, and (7) might be read as 'The definition of the species *envious man* is different from the definition of the species *wise man*.' But the conclusion clearly is meant to be about individuals: for every man, if he is envious, he is not wise. The maximal proposition presumably is meant to span the gap between the conclusion about species and the conclusion

Boethius gives examples of arguments for all the Topics, and the premisses of these arguments are almost always indefinite.[18] In some of the arguments, it is very clear that the maximal proposition is required for validity. For example, in 1189C15–D3 Boethius says, "Again, if someone argues that the Moors do not have weapons, he will say they do not use weapons because they lack iron. The maximal proposition: where the matter is lacking, what is made from the matter is also lacking."[19] Here the only premiss is 'The Moors lack iron.' To make a valid argument for the conclusion Boethius wants, we need to recognize the relationship between iron and weapons and to include the maximal proposition in the argumentation.

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about individuals. But to do so, the maximal proposition would have to be taken as 'Things belonging to species whose definitions are different are themselves different,' and such a statement is not true; *animal* and *man*, for example, have different definitions, but the same thing can belong to both species. If the maximal proposition is taken as 'Individual things whose definitions are different are themselves different' or as 'Species whose definitions are different are themselves different,' then on ancient and medieval views of definition the maximal proposition is true; but on such a reading of (8), the inference from (7) to (9) is no longer valid. The context of the argument suggests that Boethius might be thinking of the maximal proposition as 'Things belonging to species whose definitions are *incompatible* are themselves different (or incompatible).' But the argument seems to establish at most that the definitions in question are different, not that they are incompatible. Second, in analyzing the argument one must be careful to take into account that *envious man* and *wise man* are not true species but only species *per accidens;* the definition of a true species is predicated *as a definition* of its members, but the definition of a species *per accidens* is predicated of its members as an accident. *One who disparages the good of others* is not the definition of any individual man who happens to be envious but only one of his accidents. I am indebted to Nicholas Sturgeon for pointing out many of the difficulties in this argument.

[18] The fact that Boethius gives almost all his examples for Topics with indefinite rather than universal or particular propositions, a practice imitated by later medieval writers on Topics, is highly suggestive, but frustrating. Indefinite propositions seem to be carefully relegated to dialectic and universal and particular propositions to syllogistic demonstration. But the reason for such a separation is altogether obscure. Did Boethius think of dialectic and demonstration as different kinds of reasoning that had as their natural subject matter these two different kinds of propositions? Or is it simply that dialectic grew out of spoken disputations, in which indefinite propositions are more common than universal or particular propositions? Does Aristotle perhaps hold some theory requiring such a separation and is Boethius simply following well-established tradition? Though Boethius and later medievals maintain the separation rather consistently, none of them, as far as I know, makes much of it or gives an explanation for it.

[19] *"Rursus si quis Mauros arma non habere contendat, dicet idcirco eos armis minime uti, quod his ferrum desit. Maxima propositio, ubi materia deest, et quod ex materia efficitur, desit."*

Both the examples I have just given are predicative arguments;[20] but Boethius gives conditional arguments as well, and there the role of the maximal proposition is somewhat different. For instance, in 1188D11–1189A4, Boethius says: "Similarly, [arguments are made] from those parts which are called parts of a complete thing. Suppose there is a question whether the art of medicine is advantageous. . . . We will say: if it is advantageous to drive out disease and minister to health and heal wounds, then the art of medicine is advantageous; but to drive out disease, minister to health, and heal wounds is advantageous; therefore, the art of medicine is advantageous."[21] The maximal proposition for this argument is given earlier, in connection with the preceding argument: "What inheres in the individual parts must inhere in the whole" (1188D7–8).[22] The argument Boethius gives here is a straightforward example of *modus ponens,* and the maximal proposition is not needed to make the argument valid. But it is required to verify the first premiss of the argument; it validates the passage from antecedent to consequent in the argument's conditional premiss. The conditional premise can be thought of as the conclusion of an argument very like that we saw in the two predicative arguments we had before. It is derived from an argument in which, as before, we need to recognize a relationship and apply the maximal proposition:

(10) Driving out disease, ministering to health, and healing wounds are the parts of the art of medicine.
(11) What inheres in the individual parts inheres in the whole.
(12) Therefore, if advantage inheres in driving out disease, ministering to health, and healing wounds, it also inheres in the art of medicine.

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[20] 'Categorical' and 'predicative' are, respectively, Greek-based and Latin-based terms for the same thing. Similarly, 'hypothetical' and 'conditional' are Greek- and Latin-based equivalents. Boethius uses now one, now another, member of each pair, without any change in meaning (see 1183C5-7); and my discussion of his work follows suit.

[21] *"Item ab his partibus quae integri partes esse dicuntur; sit quaestio an sit utilis medicina. . . . dicemus: si depelli morbos salutemque servari mederique vulneribus utile est, utilis medicina est; at depelli morbos, servari salutem, mederique vulneribus utile est, utilis igitur medicina est."*

[22] For a discussion of this maximal proposition, which seems to be a formula for committing the fallacy of composition, see my notes to the appropriate passage of the text in *Boethius's De topicis differentiis.*

So maximal propositions function in argumentation as guarantors of validity or of soundness. In Boethius's predicative arguments based on indefinite propositions, they are general premisses essential to the validity of the argument; in hypothetical arguments, they validate the passage from antecedent to consequent in the conditional—that is, they verify the conditional premiss. Boethius's summary of his discussion of maximal propositions confirms the view of them acquired by looking at his examples. He says that a maximal proposition "gives force to arguments and to propositions"[23] (1185D10–11); "by means of them the consequent arises and the conclusion becomes ratified"[24] (1185D14–1186A1); and they "contain within themselves . . . the deriving of the conclusion itself"[25] (1186A3–4).

So far I have presented one function of maximal propositions—supporting arguments—but they have another as well. What Boethius wants to teach in *De top. diff.* is, after all, not a method for supporitng certain dialectical arguments containing indefinite or conditional premisses, but rather a method for finding arguments. How do maximal propositions aid in finding arguments?

If we look at the three examples of maximal propositions we have had so far—

(8) Things whose definitions are different are themselves also different.
(11) What inheres in the individual parts inheres in the whole.
(13) Where the matter is lacking, what is made from the matter is also lacking.—

it is clear that all three can be expressed as conditionals:

(8′) If the definitions of things are different, the things themselves are different.
(11′) If something inheres in the individual parts, it inheres also in the whole.
(13′) If the matter is lacking, what is made from the matter is also lacking.

The conclusions of the two predicative arguments are

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[23] *"vim tamen argumentis et propositionibus subministrat."*

[24] *"per eas fit consequens et rata conclusio."*

[25] *"intra se . . . ipsius conclusionis consequentiam tenent."*

(9) An envious man is not wise (is not a wise man).
(14) The Moors lack weapons.

The conclusion of the hypothetical argument is

(15) The art of medicine is expedient.

The conclusion of the argument justifying the conditional premiss used in that hypothetical argument is

(12) If advantage inheres in driving out disease, ministering to health, and healing wounds, it also inheres in the art of medicine.

Thus, (9), (14), and (15) are instantiations of the consequents in (8′), (13′), and (11′) respectively; that is, if the maximal propositions are thought of as conditionals, the conclusions of both the predicative and hypothetical arguments supported by those maximal propositions are particular cases of the consequents in their maximal propositions. The conditional premiss (12) is different. It is an instantiation of the whole conditional (11′) which is its maximal proposition; it is a particular case not of the consequent of its maximal proposition but of the entire maximal proposition.

But to think of Boethius's predicative maximal propositions as conditionals may be a mistake. Boethius is sensitive to the difference between predicatives and conditionals, and he elaborates the distinction in Book I of *De top. diff.*[26] Most of the maximal propositions he presents are given as predicatives rather than as conditionals; and if he chooses one form over the other, he may do so deliberately, though no appropriate and significant reason for doing so is apparent from the text. Perhaps, then, in the interest of accuracy the maximal propositions should be kept as predicatives and not read as conditionals.

If the maximal propositions presented as predicatives[27] are considered as such, the conclusions of the arguments in Boethius's three examples might be thought of more roughly as instances of their maximal propositions or as cases falling under the generalization that is the maximal proposition. For instance, we might think of (9) 'An envious man is not wise' as presenting a particular case covered by its maximal proposition. Its maximal proposition is (8) "Things whose definitions are different are themselves also different," and (9) seems to come to this: 'An envious man and a wise man (that is, things whose definitions are different) are (themselves also) different.' (14) might be read in this way: 'Moors (that is, people who lack the matter iron) lack weapons (that is, what is made from iron).' And so on.

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[26] See 1175A12ff.; see also 1177B7–1180A11.

[27] Boethius occasionally gives a maximal proposition as hypothetical. It is easy to distinguish between those given as predicative and those given as hypothetical, though the distinction is sometimes easier to see in Latin than in English. For example, it seems that (13) "Where the matter is lacking, what is made from the matter is also lacking" could be read as either predicative or hypothetical, but the Latin construction strongly suggests a predicative reading.

Maximal propositions, then, are generalizations that prove some conclusion because the conclusion is an instance either of the whole generalization or of the generalization's consequent in case the maximal proposition is a conditional. A maximal proposition helps in finding arguments because it is the principle that gives the argument its force; it is the generalization on which the rest of the argument depends. Once one has the appropriate maximal proposition for a dialectical question, it is not hard to construct the argument or the general outline of the argument for that question.[28] For example, given the question 'Is an envious man wise?' and the maximal proposition "Things whose definitions are different are themselves also different," an arguer has the heart of his argument; the rest of the argument will consist in giving the definitions of wise man and envious man and showing that the two are different. Even if the arguer cannot immediately construct the argument (because of his ignorance, for example, of the definition of envious man), he knows what is needed to do so, namely, differing definitions.

It may occur to someone to wonder why Boethius fusses with such complications. The argument about the envious man, for example, can easily be turned into an Aristotelian syllogism, as I showed above. Why bother with all the complexities of dialectical argument when straightforward syllogism seems so much simpler? To see the answer to the question, it is important to notice that Boethius defines an argument in psychological rather than logical terms: an argument, he says, is what produces belief regarding what was in doubt (1180C4–5). The word to emphasize here, I think, is 'belief': the dialectician's purpose is to produce belief. The aim of the questioner in a dialectical disputation is to get the answerer to agree to the questioner's thesis; both the questioner and the answerer work at producing conviction for their positions.[29]

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[28] Boethius leaves the criteria for appropriateness to his reader's intuition. The way one acquires the maximal proposition for a given question will be discussed later.

Because the aim of dialectic is conviction, the techniques of demonstration and syllogistic argument are unsuited to it. Take, for example, the argument about the envious man, which is a syllogism in Cesare. Unless the hearer of the argument knows Aristotelian logic and knows how to recognize examples of valid syllogistic moods, belief in the conclusion of the argument will not be provided for him because he recognizes the *form* of the argument as a valid Aristotelian syllogism. For hearers without that specialized knowledge (and these are most hearers) belief will in fact come because the conclusion has been shown or assumed to be an instance of or a case falling under a tacitly understood and generally accepted truth. Aristotle himself says that in most cases even if the arguer can make his argument by demonstrative science (by scientific, demonstrative syllogisms), he ought to make the argument instead by means of the Topics because most people will not be persuaded by demonstration.[30] The trouble with demonstration as a means of making arguments, in Boethius's sense of "what provides belief regarding what was in doubt," is that very many propositions one would like to prove are a long way from the self-evident truths that are first principles. To prove such propositions by demonstration requires going through all the steps from the first principles. If the one for whom the proof is made knows many of the steps along the way, derived propositions instead of first principles can be used as the starting points for the proof; otherwise the proof will have to start from the first principles and go through all the steps up to the desired conclusion. In such a case, the argument is more or less equivalent to teaching all of the science in question up to the desired conclusion, and the process becomes too long and tedious to be useful in debate. An answerer would not stand still for so long a dialogue, and more than one session might be needed. So in many cases, demonstration will be an almost impossibly cumbersome instrument for producing conviction, which is the end of dialectic.[31]

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[29] Cf. 1206D3–5.

[30] *Rhet.* I.i.12 (1355a24–29).

The Topics are thought to work where demonstration does not for two reasons: first, maximal propositions are supposed to be both self-evident truths and most general propositions;[32] and second, all true secondary propositions, those that are not self-evidently true but require proof, are instances of one or another maximal proposition.[33] Exactly why Boethius thinks that all true secondary propositions fall under a self-evidently true generalization is not clear. He tends to think of maximal propositions as predicative, though he occasionally gives one as a hypothetical; and a maximal proposition seems to be greater than the secondary propositions that fall under it because at least one of the terms in the maximal proposition can be said of more things (or has a greater extension) than the corresponding term in any of the secondary propositions. He may think of all true secondary propositions as falling under one or another maximal proposition because the terms of any secondary proposition are generalizable and because it seems that the terms of a true secondary proposition can always be generalized in such a way as to produce a self-evident truth. Take, for example, this secondary proposition from *De top. diff.*: "It remains now to disclose what a Topic is" (1185A3–4). It clearly is a hard case for Boethius's view that any true secondary proposition falls under the self-evident generalization that is its maximal proposition. Can one make or find a maximal proposition for such an example? The subject of the secondary proposition is 'disclosing what a Topic is,' and the predicate is 'remains now to be done'; that is, when the rhetoric is stripped away, the sentence seems to be 'Disclosing what a Topic is remains now to be done.' If we leave the predicate the same and generalize the subject, we might make a maximal proposition of this sort for the sentence:

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31. Cf. Aristotle, *Rhet.* I.ii.13 (1357a7–12). See also *De top. diff.* 1181A11–C10 where Boethius explains that some arguments are arguments (that is, provide belief for what was in doubt) only for certain people, who already have had proved to them the truth of the premises of the arguments at issue. What he says, of course, holds for all arguments other than those whose premises are known per se or are readily traceable to propositions known per se.

32. Cf. for example, *ICT* 280.12–14 (*PL* 1051C6–10).

33. Cf. *De top. diff.* 1176C6–10 and ff. The division of propositions Boethius gives in this passage may not be meant to be exhaustive, but the language he uses—"*propositionum quoque aliae . . . aliae*"—is of the form he regularly uses for exhaustive divisions; cf., for example, 1175A2–4, A12–13; and 1176B1–2.

'What one proposes to do and has not yet done remains now to be done.'

In any event, if the theory is correct and all true secondary propositions are instances of maximal propositions, maximal propositions clearly are very important for dialectic. Any true secondary proposition that is wanted as the conclusion of an argument falls under some maximal proposition; once the arguer has found the appropriate maximal proposition, he will have his argument or the structure of his argument proving the secondary proposition he wants to defend. Since the maximal proposition is self-evident, the arguer's opponent will have to grant it as true, though it may be so obvious that the arguer can leave it unsaid and count on it as a tacit assumption. And since the secondary proposition is a particular case covered by the generalization the opponent has to grant as true, once the arguer has made clear that the conclusion he wants is covered by the maximal proposition, the opponent will have to grant the conclusion as well. Because the maximal proposition is a self-evident truth, it has to be granted as true; and because it is a most general proposition, it covers the cases of a number of secondary propositions.[34] Hence, since all questions that occasion dialectical disputations and require arguments involve secondary propositions,[35] an argument can be made for any dialectical question by finding the appropriate maximal proposition and showing that the conclusion wanted is covered by that generalization. Finally, arguments may be thought of as arising from maximal propositions[36] for two reasons. First, the maximal proposition is the principle or generalization in the proof and hence its most important part; the maximal proposition is chosen first, and the rest of the argument is shaped and structured accordingly. Second, because a maximal proposition is a generalization covering many cases, it will work for a number of different dialectical questions, and one maximal proposition will give rise to a variety of arguments.

Aristotle's Topics, which are principles similar to Boethius's maximal propositions or strategies for argument or both, are the instruments of an art. Every dialectical question is predicative; so the proposition wanted as conclusion to a dialectical argument is also predicative, and it contains a predicate that is one or another of the predicables—that is, is related to its subject as a genus, definition, or one of the other predicables. In order to prove the conclusion, the arguer will have to show that the predicate inheres in or is separated from the subject, and having a thorough familiarity with the nature of the predicables will make a man ready and quick at just such argumentation. Aristotle presents his Topics in such a way as to teach a man the nature of the predicables and make him skillful at using them. But it is easy to read Aristotle's *Topics* as if his presentation amounted to no more than a boxful of recipes for aguments, a very long list of Topics to be memorized, from which an appropriate one could be culled for a particular dialectical question. Boethius seems to think of Aristotle's method as such an unwieldy instrument, involving the memorization of prefabricated Topics; and his own method for using maximal propositions seems to be much the same: rote learning of certain self-evident generalizations useful for dialectical arguments. But Boethius is not really interested in maximal propositions as aids to finding argument. Though maximal propositions are needed for dialectical arguments, the real instruments of Boethius's art for discovering arguments are the Differentiae, to which I will turn next.[37]

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[34] Cf., for example, *ICT* 280.12–24 (*PL* 1051C7–D8).

[35] Perhaps 'almost all' would be closer to the truth. Aristotle, for example, discusses a dialectical refutation of those who call into question or deny the law of noncontradiction; *Met.* 1006a11ff.

[36] Cf. *De top. diff.* 1185A3–7 and C6–8.

Maximal propositions differ in content, and they can be distinguished on the basis of that content. Some maximal propositions are about causes, some about contraries, and so on. If the genus is thought of as *maximal proposition,* then it may be divided into its species according to the differing content of the maximal propositions; there will be a species *maximal proposition from causes* and another *maximal proposition from contraries* and so on. In this way, *from contraries* (or simply *contraries*) is a differentia for maximal propositions. Boethius lists Themistius's and Cicero's differentiae for the genus *maximal proposition.* Depending on how they are counted,[38] there are approximately twenty-eight such differentiae in Themistius's list and nineteen in Cicero's.

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[37] Cf. Boethius's comparison of Differentiae and maximal propositions, 1186B3-12. The relationship between Differentiae and maximal propositions as they function to find arguments will emerge later.

[38] Cf. the chapter "Differentia and the Porphyrian Tree" in *Boethius's De topicis differentiis.*

The Differentiae are divided into three main groups by Themistius, two by Cicero: Differentiae are intrinsic, extrinsic, or (in the Themistian division) intermediate. If the argument and the maximal proposition have to do with the nature of the subject or the predicate in the question[39]—if, for example, the maximal proposition is about definition and the argument is based on the definition of the question's subject or predicate—then the maximal proposition and its Differentia are *intrinsic.* If, on the other hand, the maximal proposition is, for example, about contraries and the argument is based on the contrary of the subject or the predicate in the question, then the maximal proposition and its Differentia are *extrinsic* (in the Themistian division) because they have to do with something (for example, a contrary) which is external to the nature of the subject or predicate. Some maximal propositions and their arguments seem in one way to have to do with the nature of the subject or predicate and in another way not to do so—these Themistius calls *intermediate.* Maximal propositions about conjugates and their Differentiae are an example.[40] Beginning with the large divisions of Differentiae—intrinsic, extrinsic, and intermediate (in the case of Themistius's list)—Boethius divides and subdivides until he arrives at the twenty-eight lowest species of maximal propositions and the corresponding twenty-eight Differentiae;[41] he is at some pains to show that the consequent list of Differentiae is exhaustive.[42]

The fact that Differentiae originate as the differentiae of the genus *maximal proposition* has some bearing on the way they work together with maximal propositions in argumentation, but it is not important for their special function in finding arguments, which is what I will consider next. In the discussion immediately following, it will be helpful simply to take 'Differentia' as a technical term whose meaning and use we want to determine.

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[39] The subject and predicate in a dialectical question are, of course, the same as those in the corresponding conclusion.

[40] Conjugates are words drawn in different ways from the same word, as 'just' in the neuter (frequently meaning 'just thing') and 'just' in the masculine (frequently meaning 'just man') are conjugates drawn from 'justice'; see *De top. diff.* 1192B12–14.

[41] The maximal propositions Boethius is distinguishing and dividing here are only those Aristotle lists among common Topics; Boethius does not discuss the sorts of maximal propositions Aristotle includes among proper Topics. Cf. the preceding essay on Aristotle.

[42] Cf. *De top. diff.* 1194B3–1195A13. It is troublesome to him to have two sets of species for maximal propositions—the Themistian and the Ciceronian—each of which, he claims, is exhaustive of the genus *maximal proposition;* and he spends some time on the problem. See *De top. diff.* 1195B4–C7 and also 1200C14ff.

The Differentiae are instruments for finding arguments. What exactly are they supposed to find? Boethius says that all argument is basically syllogism.[43] There are two terms in a question and in the conclusion of its corresponding syllogistic argument;[44] such an argument arises when the two terms of a question are joined by and to a third term, which is thus an intermediate or middle between the two other terms.[45] Boethius gives as an example the question whether man is a substance. The two terms in the question, which are also the two terms wanted in the conclusion, are 'man' and 'substance.' In order to join 'man' and 'substance,' Boethius says, we need to find a third term that can connect the two terms in the question. 'Animal' is such an intermediate term; it can be joined to 'man'—'A man is an animal'—and also to 'substance'—'An animal is a substance.' So, by means of the intermediate 'animal,' we have an argument enabling us to join 'man' and 'substance' in the conclusion 'A man is a substance.'[46] Since the two terms of a question are connected by an intermediate and the argument for the conclusion arises from that term, Boethius says "an argument is nothing other than the discovery of an intermediate,"[47] so that finding an argument is tantamount to finding some intermediate between the two terms given. Hence, Differentiae must function to find arguments by aiding in the discovery of such intermediates. But what exactly are these intermediates that Differentiae are supposed to find?

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[43] *De top. diff.* 1184D7–14; *ICT* 279.2–6 (*PL* 1050B9–13). Boethius's use of 'syllogism' is broader and looser than the use of the word we have in mind when we talk about the demonstrative syllogism of Aristotle's *Prior Analytics;* Boethius defines 'syllogism' as Aristotle does in the *Topics:* "Syllogism is discourse in which, when certain things have been laid down and agreed to, something other than the things agreed to must result by means of the things agreed to." *De top. diff.* 1183A11-15. (*"Syllogismus est oratio in qua quibusdam positis et concessis, aliud quiddam per ea ipsa quae concessa sunt, evenire necesse est, quam sint ipsa quae concessa sunt."*) Cf. also Aristotle's *Topics* 100a25ff. See also James Duerlinger, "Συλλογισμός and συλλογίζεσθαι in Aristotle's *Organon,*" *American Journal of Philology,* 90 (1969), 320–328.

[44] Boethius here uses 'term' to refer to a phrase or an expression as well as a word. Cf. 1175B7–9, D4–8.

[45] *ICT* 279.6–11 (*PL* 1050B14–C4).

[46] Cf. *ICT* 279.11–24 (*PL* 1050C6–D7), where Boethius gives a similar but demonstrative argument. The use of Differentiae in demonstrative arguments is discussed later in this essay.

[47] *ICT* 279.30–31 (*PL* 1051A2–3): "*. . . nihil est aliud argumentum quam medietatis inventio*"; cf. also Aristotle, *Pos. An.* 90a35-36: "ὅτι μὲν οὖν πάντα τὰ ζητούμενα μέσου ζήτησίς ἐστι, δῆλον."

Boethius gives the following twenty-eight Themistian Differentiae:

Intrinsic	*Intermediate*	*Extrinsic*
From definition	From cases	From judgment
From description	From conjugates	From similars
From explanation	From division	From the greater
From genus		From the lesser
From whole		From contraries
From species		From relatives
From integral parts		From privation and possession
From efficient cause		From affirmation and negation
From material cause		From proportion
From formal cause		From transumption
From final cause		
From effects		
From destructions		
From uses		
From associated accidents		

He gives an example of the sort of argument each of these Differentiae provides. For instance, the argument concluding "Moors lack weapons," quoted above, is an argument provided by the Differentia *from material cause.* The question at issue is 'Do the Moors have weapons?' and we want to argue that they do not, that they lack weapons. To find an argument, we need to find an intermediate between the two terms in the question, something that can be joined to each of the two terms and connects them in the way wanted. Laid out in its steps, the argument Boethius gives is this:

(16) Moors lack iron.
(17) Iron is the matter (or material cause) of weapons.
(18) Where the matter is lacking, what is made from the matter is also lacking.
(19) Therefore, Moors lack weapons.

The Differentia *from material cause* (or just *material cause*) is not itself the intermediate term that gives rise to the argument; the intermediate in this case is 'iron.' The two terms the propounder of the argument wants to connect are 'Moors' and 'weapons'; 'iron' is the intermediate because it is linked to both terms, to the first term by means of (16), which says that Moors lack iron, and to the second term by means of (17), which says that iron is the matter of weapons. The Differentia *material cause,* on the other hand, is the genus of the intermediate in this argument because iron is a species of material cause. The Differentia does not work by providing a particular intermediate term; instead it suggests the *sort* of term that could serve as intermediate—namely, whatever is the material cause of the appropriate term in the question.

In *ICT,* Boethius gives a detailed example showing how to use the Differentia *definition.*

> There is a question whether civil law is a useful body of knowledge. Here 'civil law' is the subject, 'useful body of knowledge' is the predicate. What is asked is whether the predicate can inhere in the subject. Therefore, I will not be able to call civil law itself to the argument, for it is a constituent of the question. So I consider what might be incorporated in it. I see that no definition is disjoined from what it defines, so that the appropriate definition cannot be disjoined from civil law. So I define civil law, and I say, "Civil law is equity established among those who are of the same state for the sake of preserving what is theirs." After this, I consider whether this definition can be joined to the remaining term 'useful body of knowledge,' that is, whether equity established among those who are of the same state for the sake of preserving what is theirs is a useful body of knowledge. I see that the equity mentioned above is a useful body of knowledge. And so I conclude, "Therefore, civil law is a useful body of knowledge."[48]

In this example, the two terms in the question are "civil law" and "useful body of knowledge"; and the intermediate is "equity . . . ," which is joined to each of the two terms in the question and links them together in the way wanted. Again, the Differentia *definition* is not itself the intermediate for the argument; but it is the genus of the term that is the intermediate because *equity . . .* is the definition of *civil law.*

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[48] *ICT* 288.4–17 (*PL* 1059C6–D8). "*Est enim quaestio, an iuris civilis scientia sit utilis. Hic igitur ius civile supponitur, utilis scientia praedicatur. Quaeritur ergo, an id, quod praedicatur, vere possit adhaerere subiecto. Ipsum igitur ius civile non potero ad argumentum vocare; de eo enim quaestio constituta est. Respicio igitur, quid ei sit insitum. Video, quod omnis definitio ab eo non seiungitur, cuius est definitio, ne a iure civili quidem propriam definitionem posse seiungi. Definio igitur ius civile, ac dico:* Ius civile est aequitas constituta iis, qui eiusdem civitatis sunt, ad res suas obtinendas. *Post haec considero, num sic haec definitio reliquo termino, utili scientiae, possit esse coniuncta, id est, an aequitas constituta iis, qui eiusdem civitatis sunt, ad res suas obtinendas, utilis scientia sit. Video esse utilem scientiam dictae superius aequitatis. Concludo itaque: Igitur iuris civilis scientia utilis est.*"

The hypothetical argument concluding (22) "The art of medicine is advantageous" seems to be only a less clear example of the same sort of thing. The two premisses proving (22) are

(20) If driving out disease, ministering to health, and healing wounds is advantageous, the art of medicine is advantageous.
(21) Driving out disease, ministering to health, and healing wounds is advantageous.

The maximal proposition is "What inheres in the individual parts inheres in the whole," and the Differentia is *integral parts.* Here, too, the Differentia is a genus of the intermediate in the argument. Driving out disease and the rest are all integral parts of the whole which is medicine; and they form an intermediate between 'medicine' and 'advantage' by being linked to each of those two terms so that the two terms are appropriately joined. So Differentiae provide intermediates for hypothetical as well as for predicative dialectical arguments.

The argument exemplifying the Differentia *definition,* like the argument exemplifying the Differentia *material cause,* is a dialectical argument relying on a maximal proposition for its validity; but, unlike the argument from material cause, the argument from definition could easily be a demonstrative argument. The argument could be given as the first-figure Aristotelian syllogism Barbara:

(23) All civil law is equity, etc.
(24) All equity, etc., is a useful body of knowledge.
(25) Therefore, all civil law is a useful body of knowledge.

In this argument, the two terms in the conclusion are not linked by some word or phrase that can be designated only roughly as some sort of intermediate between them; they are linked in this argument by the middle term of a three-term, demonstrative Aristotelian syllogism. The Differentia *definition,* then, is also a genus of middle terms for demonstrative syllogisms, so that at least some of the Differentiae are useful for demonstration as well as for dialectic. And seeing that they can also provide middle terms for demonstrative syllogisms illuminates the enigmatic remark Boethius makes at the end of his first lengthy discussion of Differentiae. The Differentiae *definition, genus, differentia,* and *causes* are useful for demonstrative syllogisms, Boethius says (*De top. diff.* 1195A14–B2), but all the other Differentiae are useful primarily for dialectical arguments. His point seems to be that, of the Differentiae, *definition* and the others mentioned can provide not only some sort of intermediate between the two terms of a question but also middle terms for demonstrative syllogisms.

The Differentiae, then, aid in finding arguments because they aid in finding intermediate terms. Sometimes the intermediate provided is simply an expression that can be joined in some way to each of the two terms in the conclusion; sometimes it is a middle term for a demonstrative Aristotelian syllogism. In either case, a Differentia does not specify the particular intermediate term to be used in an argument, but rather it gives the genus of intermediates appropriate to that argument, suggesting the sort of intermediate that could join the two terms of the conclusion. And so Differentiae function in finding arguments much as Boethius says they do: they provide not particular arguments but a reasoned path to finding them.[49]

The list of Differentiae is much shorter than Aristotle's list of hundreds of Topics; Boethius claims it is exhaustive, and he means it to be memorized. The man who has memorized Boethius's Differentiae has ready the twenty-eight genera of all possible intermediates for arguments. When he wants to find an argument for some conclusion, he chooses from his list of twenty-eight one that is appropriate for the conclusion he wants to maintain and uses it to find the particular intermediate term that will give him the argument he needs.

It seems clear that interpreting Differentiae as genera of intermediates between the two terms in the conclusions of arguments will work for most of the Differentiae, including almost all of those Themistius designates as extrinsic. They are related to one of the terms in the conclusion straightforwardly, as its subject or predicate; and they are connected to the other term as similar, contrary, conjugate, or whatever the Differentia at issue happens to be.

The hard case for this interpretation of the Differentiae and their role in finding arguments is the Differentia *from judgment.*[50] This

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[49] For more on Boethius's basic understanding of the way Differentiae function, see the introductory remarks in his *In Ciceronis Topica.*

[50] Themistius's Differentia *from division* seems to be another hard case, but Boethius thinks it can be assimilated to Cicero's Differentia from *enumeration of parts.* See *De top. diff.* 1203A6–12.

Differentia is the genus of opinions that, for one reason or another, are considered authoritative; it gives rise only to arguments from authority. There is a question, for example, whether the heaven is revolvable; and the argument from judgment amounts to saying that it is revolvable because wise men and the most learned astronomers think so. In this argument, the particular instance of the Differentia—the opinion of learned astronomers that the heaven is revolvable—seems to be related to neither of the terms in the question.[51] It was generally recognized, however, that this Differentia and the kind of argument it could provide are different from the other Differentiae and their arguments. Cicero divides all Differentiae into intrinsic and extrinsic, and the Differentia *from judgment* is the only extrinsic Differentia in his list.[52] Both Cicero and Boethius explain that this Differentia and its arguments are generally considered to fall outside the art of the arguer;[53] according to Cicero, the Greeks called the arguments arising from this Differentia 'ἀτέχνοι', that is, not part of the art in question.[54] This extrinsic Differentia, then, seems to have troubled the ancient writers on the Topics, too, and for much the same reason that it seemed troublesome to us in light of what appears to be the correct interpretation of Differentiae: the particular instances of this Differentia are not connected to either the subject or the predicate in the question.[55]

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[51] Norman Kretzmann has suggested to me that the conclusion of an argument from judgment might be not '*x* is *A*' but 'it is true that *x* is *A*.' A proof of the latter is not necessarily a proof of the former. In this case, then, the subject of the argument's conclusion would be the proposition that *x* is *A*, and the predicate would be 'is true.' Then these two would be related by the intermediate at issue, somewhat in this way:

(1) Most of the learned (etc.) say that *x* is *A*.
(2) What most of the learned (etc.) say is true.
(3) Therefore, it is true that *x* is *A*.

Kretzmann's suggestion may be the right interpretation of this Topic, but Boethius gives no indication that he thinks of the conclusions for arguments as being of the form 'it is true that *x* is *A*' rather than '*x* is *A*.'

[52] See *Topica* IV.24.

[53] See *ICT* 309.19–29 (*PL* 1082A8–B6) and 386.8–46 (*PL* 1166D13–1167D4).

[54] *Topica* IV.24.

[55] It seems hard to imagine what self-evident truth, what maximal proposition, could be associated with this Differentia. The one Boethius gives in *De top. diff.* is not an analytical truth, but it might be thought to be psychologically (if not logically) self-evident: "What seems true to everyone or the many or the wise should not be gainsaid." (*"quod omnibus vel pluribus vel sapientibus hominibus videtur, ei contradici non oportere,"* 1190C9–11).

That this Differentia troubled those authors as it did is confirmation for the interpretation of the Differentiae laid out above, but it raises the question why this Differentia was included in the list of Differentiae and the method of Topics at all. The reason probably is historical. It appears odd at first that Boethius, who knew Aristotle's *Topics* so well, should omit all discussion of strategies from his own account of the Topics. But some evidence[56] in Alexander's and Theophrastus's treatments of the Topics suggests that the strategies might have been shortened until they amounted to little more than the sort of phrase given as Differentia, for example, *from contraries*. The less intrinsic Boethius's Differentiae are, that is, the less they are tied to the nature of either the subject or the predicate of the question, the more they seem to resemble abbreviated strategies. The most extrinsic of the Differentiae, the one *from judgment*, seems to be no more than an instruction: make the argument from judgment (from authority). So it is not unlikely, I think, that the Differentiae in Boethius's work arose as a list of abbreviated Aristotelian strategies and that the explanation Boethius gives for them—that they are the differentiae of maximal propositions that find arguments by providing an intermediate—was added later, perhaps by Greek commentators, as the potentialities of such shortened strategies began to be seen.

This view, furthermore, helps to explain an odd resemblance between Boethius's account of Topics and Aristotle's. Many of Aristotle's Topics bear some resemblance to Differentiae; for example, Aristotle gives a Topic about the conjugate of an accident[57] or about the contrary of a property,[58] and the Boethian Differentiae include *from conjugates* and *from contraries*. In Aristotle, however, Topics are first divided according to the predicable they involve, and then ordered within each predicable's group. The ordering within each of the four groups of Topics seems much the same, and often the same sort of Topic is found in all four groups. Topics about contraries, for example, occur in the list of Topics for each of the four predicables.[59] If the Differentiae began as abbreviated strategies, they are strategies gathered together across the grain of Aristotle's ordering by predicables. It is as if Boethius's predecessors had taken Aristotle's *Topics* as a boxful of blueprints or recipes for arguments, rather than as an art teaching the nature of predicables, and had been dismayed at the great number of blueprints. To facilitate remembering the Topics, they gathered them together into groups across the grain of the predicables: some Topics are about conjugates, some about contraries, and so on. Not all the Differentiae can be explained in precisely this way. The Differentia *from judgment* seems to correspond not to a strategy within the groups of Topics for the four predicables but rather to a general strategy given in the last Book of the *Topics.*[60] But for the bulk of the Differentiae, this is a plausible explanation of the relation between Aristotelian and Boethian Topics.

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[56] See the essay "Between Aristotle and Boethius" below.

[57] *Top.* 114a26ff.

[58] *Top.* 135b7ff.

[59] Aristotle does not repeat himself, however, as he is often accused of doing. The Topics about contraries, for example, are not the same but differ by being about the contraries of different predicables.

Though the real instruments for finding arguments are the Differentiae, maximal propositions cannot be dispensed with because they are required to support a dialectical argument, and Differentiae can aid in the discovery of maximal propositions as well as intermediate terms. Since a differentia takes the place of a genus,[61] Differentiae may be thought of as the various genera of maximal propositions;[62] hence, as a genus can be said to contain the things that fall under it, so each Differentia can be said to contain the maximal propositions of which it is the differentia. Consequently, because they contain maximal propositions and because, as genera, they are far fewer in number, Differentiae can also function as aids in finding maximal propositions. When one wants a maximal proposition to support an argument, instead of sorting through the numerous maximal propositions at random, one can run through the small number of Differentiae to find the genus of maximal propositions suitable for the question at issue.

The particular maximal proposition wanted can be specified further with the help of a predicable. When Boethius gives an example in full for a Differentia, after the statement of a question and its corresponding argument, he gives the predicable involved in the question and then the appropriate maximal proposition. For instance, he gives this example for the Differentia *definition:*

> Suppose there is a question whether trees are animals and suppose there is a syllogism of this sort: an animal is an animate substance capable of

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[60] Cf. *Top.* 156b20–23.
[61] Cf. *Top.* 1178C2–4.
[62] *ICT* 281.18–29 (*PL* 1052C12–D12).

perceiving; a tree is not an animate substance capable of perceiving; therefore, a tree is not an animal. The question has to do with genus, for the question is whether trees should be put under the genus of animals. The Topic which consists in a universal proposition is this: that to which the definition of the genus does not belong is not a species of the genus defined. The higher Differentia of the Topic, which is nevertheless called a Topic: *from definition.*[63]

The predicable involved in the question is *genus,* because if animal inheres in tree, it does so as the genus of tree. But the purpose of explicitly specifying the predicable in this and other arguments exemplifying Differentiae seems obscure. Boethius's method of the Topics is not the art of the predicables that Aristotle's is, and the predicables seem to play almost no role in the Boethian method of the Topics. If Boethius's Differentiae are related to Aristotle's Topics in the way suggested above, however, then a Differentia differs from an Aristotelian strategy not only by being abbreviated, but also by being stripped of its association with a particular predicable. A Differentia seems to be a strategy that has been condensed by leaving out, among other things, the predicable involved in the question at issue. So one of the ways to reconstitute the strategy (and hence the corresponding principle or maximal proposition) from a particular Differentia is to reintroduce the omitted predicable. In the example above, for instance, if we know that the predicable involved in the question is *genus,* we can reconstitute the maximal proposition by combining the omitted predicable and the Differentia (*definition*). The maximal proposition wanted, then, will have to do with the definition of a genus. What else is lacking can be filled in without too much trouble from the context of the particular argument. By considering the context, we can tell that the maximal proposition involving the definition of a genus that is needed to validate the argument has to be something like 'A thing to which the definition of a genus is unsuited is not a species of that genus.' So the predicable Boethius gives in the example for a Differentia can work with the Differentiae to find a maximal proposition for a particular argument.

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[63] *De top. diff.* 1187A6–B1. "*Age enim quaeratur an arbores animalia sint, fiatque hujusmodi syllogismus: animal est substantia animata sensibilis; arbor vero substantia animata sensibilis non est; arbor igitur animal non est. Haec de genere quaestio est, utrum enim arbores sub animalium genere ponendae sint quaeritur. Locus qui in universali propositione consistit, hic est cui generis diffinitio non convenit; id ejus cuius ea diffinitio est, species non est. Loci superior differentia, qui locus nihilominus nuncupatur a diffinitione.*"

We can summarize in this way. The heart of a dialectical argument is a term intermediate between the two terms in a question, that is, a term that can be linked to each of the question's two terms in such a way that those two terms can be linked to each other in the argument's conclusion. Differentiae are the genera of such intermediate terms, and hence they provide the kind of intermediate term needed; they constitute "a reasoned path" to finding arguments. For Boethius maximal propositions play no role in finding arguments; but they are required to support dialectical arguments—to validate the whole argument in predicative arguments and to validate the passage from antecedent to consequent in the conditional premiss of hypothetical arguments. Because Differentiae are the differentiae of maximal propositions, they can be of use in finding maximal propositions as well as intermediate terms. Because they are abbreviated strategies, they can be used in connection with the particular predicable of a given question to specify further the maximal proposition needed for an argument. Maximal propositions are Topics for argument—places from which arguments can be drawn—because they are the generalizations on which the argument is based and of which the conclusion is a particular case. Differentiae, the main instruments of dialectic, are Topics or places for arguments in two senses. First, they are Topics or places for maximal propositions because they contain maximal propositions as their genera, and hence maximal propositions are found with their help. Second, and more important, as genera of intermediate terms, they contain the intermediate terms from which arguments arise for all dialectical questions, and hence they provide arguments.

3

Between Aristotle and Boethius

As is clear from the preceding two essays, the discipline of the Topics and the method for finding arguments underwent important changes between Aristotle's time and Boethius's. Perhaps the most significant and certainly the most easily recognizable change is in the notion of a Topic. We can see the difference clearly even on a superficial level: Aristotle expresses his Topics as propositions, but Boethius's Differentiae, the Topics Boethius is really interested in, are expressed as words or phrases whose expansion into appropriate propositions is neither intended nor readily conceivable. Aristotle gives hundreds of Topics, divided into only four groups, depending on which predicable they are concerned with. Boethius gives just twenty-eight Topics (the Themistian Differentiae), and these are highly ordered among themselves. Aristotle's method for using Topics is strongly tied to oral disputation; the eighth Book of his treatise is given over entirely to a discussion of disputation, and his presentation of each Topic tends to be couched in terms of disputation, for example, what one says to one's opponent when he maintains such and such a thesis. Boethius's exposition centers on the arguments themselves, divorced from disputation and its participants, and the arguments he presents as examples are brief, orderly, and textbookish. Finally, as I argued above, Aristotle thinks of a Topic as a general strategy for argumentation, which is useful for the discovery and construction of a number of different arguments. Boethius thinks of a Differentia as a genus of intermediate or third terms for syllogisms,[1] which provides an appropriate intermediate or third term for a variety of arguments.

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[1] I am using 'syllogism' in Boethius's broad sense of the word; see *De top. diff.* 1183A11ff. and my notes on the passage in *Boethius's De topicis differentiis* (Ithaca, N.Y.: Cornell University Press, 1978).

The difference between the two can be made clearer, perhaps, by an example. As it happens, Aristotle and Boethius both discuss an argument having to do with the definition of genus. Aristotle presents the example as follows. Suppose participant *A* in a dialectical disputation maintains that *x* is the genus of *y*, and participant *B* maintains that it is not. How is *B* to refute *A*? Well, Aristotle says, *B* "must see whether what is given as the genus partakes of or can partake of the species" (*Top.* 121a14–16). Corresponding to this strategy, which is the Topic, Aristotle supplies the following principle: "The species receives the definition of the genus, but the genus does not receive the definition of the species" (*Top.* 121a13–14). So the notion of a genus partaking of a species, which is employed in the strategy, should be interpreted as the genus "receiving the definition" of the species; that is, *x* partakes of *y* only in case the definition of *y* is predicated truly of *x*. Further evidence that this is Aristotle's meaning is in his next words: "[if someone gives a genus for being or oneness] it will happen that the genus partakes of the species, for being and oneness are predicated of all things that are, so that their definition is also predicated" (*Top.* 121a17–19). So in refuting *A*, *B* is to begin with a Topic, namely, the strategy of seeing whether *A*'s putative genus *x* in fact partakes of its species *y*; that is, whether the definition of the species *y* is predicated truly of the putative genus *x*. If *B* finds that *x* does partake of *y*, then he employs his principle that the definition of a species is not predicated truly of the genus of that species; since *x* is in violation of this principle, *B* concludes that *x* is not, in fact, the genus of *y* after all. For Aristotle, then, a Topic is a strategy based on a principle, and Aristotle's method for the discovery of arguments consists in knowing the nature of a predicable (such as genus) and checking to see whether one's opponent has violated some rule regarding it.

The corresponding passage in *De top. diff.* begins with a question: "suppose there is a question whether trees are animals" (1187A6). And suppose that we want to answer in the negative and to support our answer with an argument. How do we find the argument? Boethius's method is to start with the two terms of the question ('trees' and 'animals'), which will also be the two terms in the conclusion of our argument, and attempt to find an intermediate term that will connect them in a syllogism. His list of twenty-eight Differentiae is supposed to include all the possible varieties of third terms. So we go through the list of these twenty-eight to see which one is appropriate for the argument we need, and we see intuitively that the Differentia *definition* can be used in this case. We produce the definiens (what Boethius refers to as the definition) of one of the two terms, namely, 'animal'; and by attaching the definiens to this term, we make the first premiss of our argument: 'An animal is an animate substance capable of perceiving.' Next, we connect the definiens in the appropriate way to the other term to produce a second premiss: 'A tree is not an animate substance capable of perceiving.' The maximal proposition for this argument, according to Boethius, is this: 'That to which the definition of the genus does not belong is not a species of the genus defined.' If we recognize the relationships among the three terms and apply the maximal proposition, we can conclude validly that trees are not animals.[2] The intermediate term in this case is *animate substance capable of perceiving,* and it is an instance of definition, on Boethius's view. A Differentia, then, is a genus of intermediate or third terms; and Boethius's method for the discovery of arguments consists in selecting one of the twenty-eight Differentiae, finding an intermediate term on the basis of the Differentia, and building a syllogism around that intermediate term.

Plainly, Boethius and Aristotle handle these two very similar cases in very different ways. A rough summary of the difference is that Boethius's method of discovery is more highly ordered and less informal than Aristotle's and that it relies on a type of Topic that must have been developed after Aristotle. What accounts for this change between Aristotle's and Boethius's methods of discovery? How did the discipline of the Topics evolve between these two philosophers? My purpose in this chapter is to sketch the start of an answer to these questions, within certain limitations.

For Aristotle and the tradition after him, Topics were important not only in dialectic but also in rhetoric and mnemonics. In mnemonics, a Topic is literally a place (generally a place in some large edifice) from which by certain mnemonic techniques one can recall a part of what is to be remembered.[3] In rhetoric, there are Topics similar in content and function to dialectical Topics. Aristotle's *Rhetoric* devotes considerable attention to these rhetorical Topics,[4] and they are discussed in detail in the rhetorical treatises of Cicero and Latin rhetoricians after him. After Cicero the study of Topics flourished among Latin rhetoricians, who paid attention to Topics because of their usefulness for law and oratory. Tacitus, Quintilian, Victorinus, Martianus Capella, Fortunatianus, and Cassiodorus all wrote something about Topics.[5] But none of these authors has much theoretical discussion of the nature of Topics or of the manner in which Topics provide arguments, and their treatments of the Topics are not likely to have advanced or altered either the conception of a Topic or the method of discovery. Still, the use of Topics in rhetoric and mnemonics almost certainly influenced the discussion of dialectical Topics, and the change in the method of discovery from Aristotle's time to Boethius's has its sources in rhetoric and mnemonics, no doubt, as well as in dialectic. But to consider the traditions of rhetoric and mnemonics is clearly beyond the scope of this study, and I will confine myself to considering the change in dialectic. Within the field of dialectic, furthermore, I am leaving the Stoics out of account. We have Cicero's word that they ignored methods for the discovery of argument and concentrated exclusively on what we now call logic,[6] and I know of no evidence to contradict Cicero's claim.[7]

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[2] Cf. also in this connection *ICT* 288.4–17 (*PL* 1059C6–D8).

[3] For more discussion of Topics in mnemonic techniques, see the essay "Dialectic in Aristotle's *Topics*" above.

[4] Cf., for example, I.ii.21ff., I.v.1ff., II.xii.13ff.

Of the early Peripatetics, Theophrastus, Eudemus, and Strato are said to have written on the Topics. Strato is cited by Alexander of Aphrodisias[8] as having altered a particular Aristotelian Topic, and Diogenes Laertius attributes to him a work entitled 'τόπων προοίμια'.[9] Eudemus, according to Alexander, wrote a work called 'περὶ λέξεως', in which he discussed types of dialectical questions.[10] As far as we know, neither Strato's nor Eudemus's work on Topics has been preserved. Diogenes Laertius[11] attributes at least two works on the Topics to Theophrastus: *ανηγημένων τόπων* and *τὰ πρὸ των τόπων*. And Alexander mentions Theophrastus's *Topics*[12] and his *ανηγημένων λόγων*.[13] Though none of these books on the Topics remains, Alexander's commentary on Aristotle's *Topics* includes a couple of substantial quotations or paraphrases. These Theophrastian remnants are discussions of the nature of a Topic, just the sort of material important for comprehending the change in the conception of Topics.

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[5] Cf., for example, the following: *Cornelii Taciti Dialogus de oratoribus,* ed. Maximum Lenchantin de Gubernatis, Corpus Scriptorum Latinorum Paravanianum (Turin: G. B. Paravia, 1949), p. 31; Quintilian, *Institutio oratoria,* tr. H. E. Butler (London: Heinemann, 1921), V.x.20ff., V.x.100ff., V.xii.15ff.; *Victorini explanationum in Ciceronis rhetoricam libri II,* in *Rhetores Latini minores,* ed. Charles Halm (Leipzig: Teubner, 1863), pp. 213ff.; *Martiani Capellae liber de arte rhetorica,* in *Rhet. Lat. min.,* pp. 465ff.; C. *Chirii Fortunatiani artis rhetoricae libri III, Rhet. Lat. min.,* pp. 105ff.; Cassiodorus, *Institutiones,* ed. R. A. B. Mynors (Oxford: Clarendon Press, 1937), pp. 125ff.

[6] Cicero, *Topica,* II.6.

[7] See Benedetto Riposati, *Studi sui'Topica, di Cicerone,* (Milan: Società Editrice "Vitae Pensiero," 1947), pp. 5–6. See also Charles Thurot, *Etudes sur Aristote: La Dialectique et la rhetorique,* (Paris: Durand, 1860), pp. 187ff.

[8] Alexander of Aphrodisias, *In Aristotelis Topicorum libros octo commentaria,* in Maximilian Wallies, ed., *Commentaria in Aristotelem Graeca (CAG),* (Berlin: G. Reimer, 1891), II, pt. ii. 340.3ff.

[9] Diogenes Laertius, *Lives,* V.59.

The first of these passages occurs at the beginning of Alexander's commentary:

> As Theophrastus says, a Topic is a source (*αρχή*) or element, from which we take sources for individual things, and these sources establish the understanding. A Topic is definite in outline (for either [a Topic] encompasses the common and universal, which govern syllogisms, or [a Topic] is able, on the basis of [what is common and universal], to take and demonstrate things of the same sort), but it is indefinite as far as individual things are concerned, for beginning from these, it is possible to provide a readily believable premise for the matter at hand.[14]

The same Theophrastian definition is cited again in *In Top.* p. 126.12–16, but there Alexander omits the material in parentheses and also the final "for" clause in the passage quoted above,[15] indicating that perhaps this omitted material is Alexander's own thought added to aid comprehension of Theophrastus's definition. The other Theophrastian definition of major importance for our purposes occurs in *In Top.* p. 135.2–6: "One must understand that Theophrastus says a Topic and a precept are not the same. A precept is more common and more universal and more simply expressed, and from it a Topic is found. For a precept is the source of a Topic, as a Topic is the source of a dialectical syllogism."[16] Alexander adds what appears to be his own explanation: "For example, a precept is something expressed in this way: One must make a dialectical syllogism from contraries, from coordinates. But an example of a Topic: If one of a pair of contraries has many meanings, then so does the other; or, If one [*A*] of a pair of contraries [*A*, *B*] belongs to one [*X*] of a pair of contraries [*X*, *Y*], then the other contrary [*B*] belongs to the other contrary [*Y*]. And again: Whatever is the case for one coordinate is also the case for the rest of the coordinates. For a Topic is a premiss arising from a precept."[17]

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[10] Alexander of Aphrodisias, *In Top.*, p. 69.15ff.

[11] *Lives*, V.42–50.

[12] For example, *In Top.*, p. 55.11.

[13] *In Analytica priora*, ed. Maximilian Wallies, *CAG*, II, pt. i, (Berlin: G. Reimer, 1883), 340.14–15.

[14] "*ἔστι γὰρ ὁ τόπος, ὡς λέγει Θεόφραστος, ἀρχή τις ἢ στοιχεῖον, ἀφ' οὗ λαμβάνομεν τὰς περὶ ἕκαστον ἀρχὰς ἐπιστήσαντες τὴν διάνοιαν, τῇ περιγραφῇ μὲν ὡρισμένος (ἢ γὰρ περιλαμβάνει τὰ κοινὰ καὶ καθόλου, ἅ ἐστι τὰ κύρια τῶν συλλογισμῶν, ἢ δύναταί γε ἐξ αὐτῶν τὰ τοιαῦτα δείκνυσθαί τε καὶ λαμβάνεσθαι), τοῖς δὲ καθ' ἕκαστα ἀόριστος· ἀπὸ τούτων γὰρ ἔστιν ὁρμώμενον εὐπορεῖν προτάσεως ἐνδόξου πρὸς τὸ προκείμενον·*" *In Top.*, p. 5.21–27.

[15] "*διὸ καὶ ὁρίζεται ὁ Θεόφραστος τὸν τόπον, ὡς ἤδη ἡμῖν ἐν τοῖς πρώτοις εἴρηται, οὕτως· 'τόπος ἐστὶν ἀρχή τις ἢ στοιχεῖον, ἀφ' οὗ λαμβάνομεν τὰς περὶ ἕκαστον ἀρχάς, τῇ περιγραφῇ μὲν ὡρισμένος, τοῖς δὲ καθ' ἕκαστα ἀόριστος.'*"

These passages suggest that Theophrastus thought of a Topic primarily as a principle. According to Theophrastus, a Topic is a source and an element that is definite in outline but indefinite with regard to particulars. This definition, read in light of Alexander's example of a Topic, suggests a basic generalization that can be used in a variety of syllogisms to derive other, less general propositions. On Theophrastus's view, the many passages in which Aristotle appears to identify a Topic with the precept or strategy of an argument are really just giving the strategy from which a Topic arises. In the essay on Aristotle above, I have argued that such an interpretation is mistaken,[18] and so I think the account of Topics Theophrastus presents as Aristotelian is not really Aristotle's. The change in the discipline of the Topics from Aristotle's time to Boethius's is marked by a progressive shift away from concern with oral disputation and toward interest in written arguments and prepared speeches; this shift is accompanied by a tendency to make the Topics more and more abstract, formal, and organized. Theophrastus's view of Aristotle's Topics as principles rather than strategies (or precepts) seems to me to be the first step in that shift. And it is Theophrastus's sort of understanding of Aristotle's Topics that Boethius adopted for his own use and transmitted to the later Middle Ages. For Boethius, an Aristotelian Topic is a principle (that is, a maximal proposition); strategies are not discussed anywhere in either of Boethius's extant works on Topics.

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[16] "δεῖ δὲ μὴ ἀγνοεῖν ὅτι Θεόφραστος διαφέρειν λέγει παράγγελμα καὶ τόπον· παράγγελμα μὲν γάρ ἐστι τὸ κοινότερον καὶ καθολικώτερον καὶ ἁπλούστερον λεγόμενον, ἀφ' οὗ ὁ τόπος εὑρίσκεται· ἀρχὴ γὰρ τόπου τὸ παράγγελμα, ὥσπερ ὁ τόπος ἐπιχειρήματος." Alexander says that ἐπιχείρημα is a dialectical syllogism in *In Top.*, p. 126.12.

[17] "οἷον παράγγελμα μὲν τὸ οὕτως λεγόμενον, ὅτι δεῖ ἐπιχειρεῖν ἀπὸ τῶν ἐναντίων, ἀπὸ τῶν συστοίχων, τόπος δὲ οἷον 'εἰ τὸ ἐναντίον πολλαχῶς, καὶ τὸ ἐναντίον', ἢ 'εἰ τῷ ἐναντίῳ τὸ ἐναντίον ὑπάρχει, καὶ τὸ ἐναντίον ὑπάρχει τῷ ἐναντίῳ', καὶ πάλιν 'ὡς ἓν τῶν συστοίχων, οὕτως καὶ τὰ λοιπά'· ὁ γὰρ τόπος πρότασις ἤδη τις ἀπὸ τοῦ παραγγέλματος γεγονυῖα." *In Top.*, p. 135.6–11.

[18] See "Dialectic in Aristotle's *Topics*" above.

But the strategies, isolated by Theophrastus and denied the status of Topics, may have been important in bringing about the change in the conception of a Topic. To begin with, as Theophrastus conceives of it, a strategy has a certain resemblance to a Boethian Differentia. A Topic is said to arise from a strategy, just as a maximal proposition is said to come from a Differentia. Several Topics may correspond to one strategy,[19] just as several maximal propositions may correspond to one Differentia. And strategies may serve as a means for ordering Topics, just as Differentiae serve to order maximal propositions. Strategies, furthermore, are easily compressible in a way that maximal propositions are not. Aristotle tends to give strategies in this form: "One Topic is to consider if [your opponent] has given as an accident what belongs in some other way."[20] In the *Rhetoric*, he frequently gives strategies in this way: "One Topic for demonstrative enthymemes is from opposites; for it is necessary to see if an opposite belongs to an opposite. . . . for example, temperance is good, for incontinence is harmful."[21] Alexander's example of a strategy is "One must make a dialectical syllogism from contraries."[22] It does not seem a long step from the shortened strategies in Aristotle's *Rhetoric* and Alexander's example to the corresponding Differentia *from contraries*. The strategies pointed out and isolated by Theophrastus may have been the direct ancestors of Boethius's Differentiae, and the attention Theophrastus called to the strategies may have provided the impetus that resulted in the discovery of the Differentiae.[23]

Though Cicero wrote a treatise entirely devoted to Topics, his work is practically devoid of theoretical foundation for the study of them. His *Topica,* for example, has virtually no discussion of the nature of a Topic or its function in the discovery of argument; instead, it contains only a list of Topics and examples of arguments in jurisprudence for which those Topics are useful. But Cicero's Topics are not strategies or principles expressed in propositions; rather, they are expressed by the words and phrases Boethius later uses to refer to Differentiae. The discussion of Differentiae in the third Book of *De top. diff.* is simply a discussion of the Topics in Cicero's *Topica.* So, I think, a major part of the change in the conception of a Topic must have taken place between Aristotle and Cicero. Although Cicero's Topics are Differentiae rather than principles or strategies, Cicero himself probably did not have the method Boethius had for using them. Cicero, for example, never refers to his Topics as Differentiae; maximal propositions or principles play no part in his discussion of Topics; and there is no suggestion in his work that he thinks Topics provide intermediate terms for arguments.

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[19] Cf. Alexander's explanation of the Theophrastian passage, *In Top.*, p. 135.6ff., quoted just above.

[20] *Top.* 109a34.

[21] *Rhet.* II.xxiii.1 (1397a7–10).

[22] *In Top.*, p. 135.7.

[23] See also the introductory survey of this period in Jan Pinborg's *Logik und Semantik im Mittelalter* (Stuttgart-Bad Cannstatt: Frommann-Holzboog, 1972), pp. 21–24, and his "Topik und Syllogistik im Mittelalter," in *Sapienter Ordinare: Festgabe für Erich Kleineidam*, ed. F. Hoffmann, L. Scheffczyk, and K. Feiereis (Leipzig: St.-Benno Verlag, 1969), pp. 158–160.

As for Greek philosophers between Cicero and Boethius, medieval Arabic bibliographers note that Ishaq (tenth century A.D.) translated Ammonius's commentary on the *Topics* and that Yahya ibn 'Adi (also tenth century) said he had Ammonius's commentary on the first four Books of Aristotle's *Topics.*[24] If such a commentary by Ammonius did exist, and if the Ammonius in question is (as seems not implausible) Ammonius Hermiae, then it is possible that Boethius knew and used that commentary.[25] But as far as we know, none of Ammonius's work on the Topics still remains. Themistius and Alexander of Aphrodisias also wrote on the Topics. Alexander's commentary on Aristotle's *Topics* is extant, but only fragments of Themiustius's remain, preserved in some quotations and paraphrases in Averroes's commentary on the *Topics.*[26] One of these passages contains Themistius's definition of a Topic. In that passage Averroes begins with Theophrastus's definition, apparently citing the same passage Alexander cites,[27] and then contrasts Themistius's view:[28] "Themistius, however, says that a Topic is a general proposition which is truer than other propositions of a syllogism; and he says that sometimes such a proposition itself, sometimes its meaning and force, is placed within a syllogism."[29] The Themistian material Averroes preserves here unfortunately deals only with principles or maximal propositions, even though Themistius gives considerable attention to Differentiae, to judge from what Boethius says. In discussing the passage, Averroes maintains that the difference between Themistius and Theophrastus on the nature of a Topic consists mostly in Themistius's insistence that a principle is sometimes used within a syllogism,[30] and I think Averroes's assessment is correct. Both Theophrastus and Themistius pick out the same sort of thing as a principle; the difference between their two definitions of a Topic seems to be only in emphasis, Theophrastus speaking of a principle as a source and element, Themistius referring to it as a general proposition.

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[24] See F. E. Peters, *Aristoteles Arabus* (Leiden: E. J. Brill, 1968), p. 20.

[25] For Boethius's acquaintance with Ammonius, see, for example, C. J. De Vogel, "Boethiana I," *Vivarium,* 9 (1971), 49–66.

[26] As far as I know, Averroes's short and middle commentaries on Aristotle's *Topics* survive in the original Arabic and also in Latin. For my purposes here, I have used only the Latin middle commentary: *Primi voluminis pars III Aristotelis stagiritae Topicorum, atque Elenchorum libri, cum Averrois Cordubensis in eos media expositione* (Venice, 1562). Exactly the same text is in the edition reproduced by the Minerva Press, Frankfurt am Main, 1962, but in this edition the paragraph letters are sometimes put in carelessly. After an initial search through the middle commentary, I count nineteen quotations or summaries of Themistius: 28A, 43I, 45C,

Alexander gives Theophrastus's definition and seems to accept it as it stands, emphasizing in his explanation that it is a premiss and an aid to finding premisses.[31] He disagrees with Theophrastus's rejection of strategies as Topics, though; on his view, both strategies and principles are Topics, and he remarks that Aristotle calls strategies Topics.[32] In this disagreement between the two commentators, Boethius's understanding of a Topic accords with

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46C, 49I, 50I, 58A, 62B, 67H, 69C, 70A, 72I, 73M, 77C, 79C, 100H, 101G, 106L, 113M. Fur further discussion of these Themistian passages, see my article "Boethius's Works on the Topics," *Vivarium*, 12 (1974), 77–93.

[27] At note 14 above.

[28] The renaissance editions have parallel colums of two different Latin translations, one attributed to Mantinus, the other to Abram. For the sake of consistency, I am here following and quoting Mantinus's translation.

[29] Averroes, *Primi voluminis*, p. 28D. "*Themistius vero dicit, quod locus est propositio universalis, quae est verior ceteris propositionibus syllogismi, et dicit, quod illa propositio, quae ita se habet, quandoque ponitur ipsamet in syllogismo, quandoque vero eius significatum et vis eius.*" Abram's translation has "*sententia*" instead of "*significatum*," and my English translation here follows Abram at this point.

[30] Averroes also refers to a passage from Alexander in which Alexander expressly argues against such a view (28E).

[31] *In Top.*, pp. 126.11–12 and 17–19, 5.21ff., and 135.3ff.

[32] *In Top.*, pp. 135.18ff.

Theophrastus's rather than with Alexander's; he thinks of Aristotle's Topics as principles only.

So, on the basis of Themistius's and Alexander's extant discussions of the nature and function of the Topics, it seems fair to say that the important differences between Aristotle and Boethius do not stem from either Themistius or Alexander. Theophrastus appears to have begun the change, and the completion of at least a part of the change can be seen in Cicero's work. But the Boethian method for the discovery of arguments seems to be uniquely preserved in Boethius's treatises on the Topics. There is nothing quite like it in the extant work of any of the intermediaries between Aristotle and Boethius considered in this section. Boethius's work on the Topics seems to be the sole surviving representative of a significant development in the history of dialectic. Plainly, however, a good deal of work remains to be done on the tradition of the Topics between Aristotle and Boethius. No doubt there are logic manuscripts from this period that have not yet come to light, and even the material we know about and have available in modern editions has not been fully explored. For example, no one has thoroughly studied Alexander's commentary on Aristotle's *Topics* or supplemented the scanty *CAG* index of passages showing Theophrastus's or Alexander's theory of Topics. Until further research is undertaken, the conclusions in this essay will have to remain very tentative.

4

Topics and Hypothetical Syllogisms in Garlandus Compotista

Scholars working on medieval logic have demonstrated that fourteenth-century logic in many ways resembles and anticipates twentieth-century logic;[1] and we are beginning to understand how that fourteenth-century work on consequences or conditional inferences developed from the thoroughgoing Aristotelianism that characterized logic in the first half of the thirteenth century.[2] But one of the things that at first glance appears odd about the history of logic in the scholastic period is that eleventh- and early twelfth-century logic seems very similar to the relevant fourteenth-century material; and so it can appear as if the rich, subtle twelfth-century logic based on conditional inferences was superseded in the thirteenth century by an inflexible Aristotelianism focused on the syllogism, only to be rediscovered—apparently independently—in the fourteenth century. That this is at least a very misleading impression of the development of scholastic logic can be shown, I think, by a closer look at the early scholastic work on Topics and syllogisms, which is in fact much less correctly described as a formal logical system than is its fourteenth-century analogue, and which maps less neatly onto contemporary logic than does its fourteenth-century successor. The eleventh-century logic of Garlandus Compotista is a good place to begin. His *Dialectica*, which may

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This essay is a revised version of "Garlandus Compotista and Dialectic in the Eleventh and Twelfth Centuries," published in *History and Philosophy of Logic*, 1 (1980), 1–18.

[1] One could pick any number of examples. To take just one, see the following papers by Ivan Boh: "A Study in Burleigh: *Tractatus de regulis generalibus consequentiarum*," *Notre Dame Journal of Formal Logic*, 3 (1962), 83–101; "Walter Burleigh's Hypothetical Syllogistic," *Notre Dame Journal of Formal Logic*, 4 (1963), 241–269; "Burleigh: On Conditional Hypothetical Propositions," *Franciscan Studies*, 23 (1963), 4–67; "An Examination of Some Proofs in Burleigh's Propositional Logic," *New Scholasticism*, 38 (1964), 44–60; and especially "Consequences," in *The Cambridge History of Later Medieval Philosophy*, ed. N. Kretzmann et al. (Cambridge: Cambridge University Press, 1982).

[2] See Eleonore Stump, "Topics: Their Development and Absorption into Theories of Consequences," in *The Cambridge History of Later Medieval Philosophy*.

have been written before 1040,[3] is the earliest complete medieval logic text still extant, as far as we now know; it stands at the beginning of the scholastic tradition, and several significant controversies and doctrines of subsequent scholastic work on logic are prefigured in or derived from the philosophical tradition represented by Garlandus.

Garlandus's overriding interest in his *Dialectica* is apparently in hypothetical syllogisms. The chapter on hypothetical syllogisms is more than five times as long as the one on categorical syllogisms and more than twice as long as the next longest chapter in the book; it alone accounts for fully one-third of his logic text. It is plain that throughout his discussion of hypothetical syllogisms, he is heavily dependent on Boethius's treatise *De hypotheticis syllogismis*, and it would be of considerable interest to know more about the ways in which and the extent to which Garlandus's understanding of hypothetical syllogisms differs from Boethius's. But such an understanding requires first being clear about Garlandus's own theory of hypothetical syllogisms, and that is a subject I want to work on here. Furthermore, Garlandus himself says emphatically in several places[4] that it is not possible to understand syllogisms of any sort, categorical or hypothetical, without having a thorough understanding of the Boethian Topics; and I think it is true that his treatment of categorical as well as hypothetical syllogisms is heavily dependent on his theory of Topics. But though his understanding of Topics appears to be taken over wholesale from Boethius, it is in fact very different from Boethius's; and so it is important to begin with a detailed investigation of Garlandus's own theory of Topics.

Topics

Garlandus's chapter on Topics is plainly derivative from Boethius's *De topicis differentiis*; and in some places it appears to be no more than a paraphrase of Boethius. The language of Garlandus's chapter, the crucial definitions, the order in which the material is discussed, and many of the examples are very similar to the corresponding elements of Boethius's treatise. In many places material is taken verbatim from

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[3] *Garlandus Compotista. Dialectica*, ed. L. M. de Rijk (Assen: Van Gorcum, 1959), p. xlix. Short references to this work are given by page and line number in parentheses in the text of the essay.

[4] See, e.g., *Dialectica*, pp. 86.9–20, 114.17–18, and 115.4–14.

Boethius's work (frequently without acknowledgment).[5] Garlandus opens the chapter by paraphrasing Boethius's important division of logic into evaluation of arguments and discovery of arguments. It is a distinction that Garlandus not only preserves but takes seriously; and, like Boethius, he relegates dialectic to discovery. Following Boethius, he calls the instruments of dialectic "Topics," and he divides Topics into maximal propositions and Differentiae. His definitions of these two sorts of Topic are quotations from Boethius; furthermore, the list of Topics, the groupings of the Topics in that list, and even a number of the examples are taken from Boethius's treatise.[6] All of this, of course, gives the impression that Garlandus's treatment of dialectic closely resembles Boethius's, and in many respects it does. The dissimilarities, however, are many and important.

Garlandus begins his exposition of the Topics with a general description of a Topic and specific definitions of a Differentia and a maximal proposition, which he briefly analyzes and discusses.

The general description of a Topic has two parts, both of them taken from Boethius: (1) a Topic is the foundation of an argument, and (2) a Topic is that from which a fitting argument for the question at issue is drawn (100.21–23). One sort of Topic, he says, is a maximal proposition, which he defines as Boethius does: a maximal proposition is a self-evidently true proposition, for which no proof can be found and which can serve as the basis of proof for other propositions (87.4–8). Although he says Topics belong to the part of logic concerned with discovery (86.14), it is important to notice that he assigns maximal propositions to the part of logic concerned with evaluation (86.12). He

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[5] Cf., e.g., the following parallels:

Garlandus	Boethius
86.15-16	1173 C 9-11
86.20-21	1174 C 3-5
86.25	1174 C 5-6
87.4-6	1176 C 6-10
87.8-12	1176 C 13-D1
87.24-29	1185 B 10-C3

[6] Garlandus's chapter is unusual in its closeness to Boethius's treatise in three other, more technical respects. First, he discusses the Ciceronian Topics from Book III of *De top. diff.* as well as the Themistian Topics from Book II. Subsequent scholastic treatments of Topics (Abelard's treatment in his *Dialectica* is a notable exception) tend to concentrate exclusively on the Themistian Topics. Second, he considers seriously Boethius's claim that the Differentiae are specific differentiae of maximal propositions. And third, he follows Boethius in attempting to show (p. 114.17–18) which Topics are useful for which syllogisms (*De top. diff.* 1173C10–11 and 1195A13–1196A3).

gives as a reason for doing so the fact that (A) "a maximal proposition proves a syllogism" (86.12–13). Here he deviates from Boethius, not in the content of his theory, but in his emphasis. In practice, for Boethius, too, maximal propositions confirm arguments; but because Boethius thinks of maximal propositions in the context of their role in Aristotle's method of discovery (as Boethius understands it), he assigns maximal propositions in theory to discovery rather than to evaluation. That discrepancy between theory and practice in Boethius is inherited by Garlandus and accounts for the otherwise confusing fact that Garlandus assigns Topics to discovery but maximal propositions (which are one sort of Topic) to evaluation.

When Garlandus assigns Topics to discovery, he explains that he does so because he thinks that (B) Topics find the conclusions of arguments (86.14–15). This is another subtle scholastic change in the old theory of dialectic. For Boethius, the conclusions of arguments consist simply in affirmations or denials of the propositions in doubt in dialectical questions. For example, given the question "Is rule by a king better than rule by a consul?" the conclusion of the corresponding argument, Boethius thinks, consists simply in affirming or denying that it is better. What is difficult to find, and what Boethius wants to give a method for finding, is an *argument* that will support the conclusion.[7] Garlandus's assertion that Topics find conclusions is a second shift of dialectic from the realm of discovery in the direction of evaluation. Like Boethius, Garlandus supposes that the arguments being discussed in a consideration of dialectic all take their origin from particular questions, so that a conclusion will be either an affirmation or a denial of the proposition in doubt in the corresponding dialectical question. And from everything else Garlandus says about Topics, it is perfectly plain that he does not believe Topics help us decide in any given case whether it is the affirmation or the denial that is the correct conclusion. I think, then, that *finding* conclusions can be a concern for him only if he is using the traditional Boethian terminology of discovery to talk about the truth of a conclusion and the validity of the inferences in the argument yielding that conclusion, so that by 'finding conclusions' he means something like finding acceptable conclusions, that is, determining which conclusions are validly inferred and true. But determining either of these issues is much more a part of evaluation than of discovery.

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[7] Cf., for example, *De top. diff.* 1174D9–11 in connection with 1182A12–B1.

In his discussion of the nature of an argument, Garlandus (following Boethius) defines argument as a reason producing belief concerning something that was in doubt (92.19). But, he adds, a reason of this sort is equivalent both to the two premisses which precede the conclusion and to the maximal proposition because (C) the maximal proposition expresses the sense of the two premisses. To illustrate his point, Garlandus gives the following example. Suppose there is a question "whether every man is a substance. Every animal is a substance and every man is an animal; so every man is a substance. The maximal proposition [for this argument]: What is universally attributed to the whole [is] also [attributed] to the part" (92.26–29). The two premisses are the argument, on Garlandus's view; but, according to him, the maximal proposition can also be considered the argument because it contains the sense of the two premisses and is gathered from them (92.21–23 and 92.30–33). Garlandus also says that a maximal proposition is the foundation of an argument because the propositions which are the argument (i.e., the two premisses) are contained in the maximal proposition (100.25–30). It is important to note this part of Garlandus's theory for understanding his views of Topics because, as Garlandus states this part of his theory, it seems in flagrant contradiction with the example he uses to illustrate it. It is obvious that the maximal proposition is not the sense of the two premisses in this case, however loose a meaning we give to 'sense' (though it might be thought to be the sense of the first premiss and the conclusion). The significance of this difficulty and of Garlandus's claim (C) will emerge as we examine Garlandus's theory further.

If we look at Garlandus's other two claims about a maximal proposition—(A) and (B) above—they fare just as badly in the light of this example. First, the maximal proposition does not prove this argument. In fact, as the argument is given, it does not need any addition to prove the conclusion; it is a standard Aristotelian syllogism in *Barbara*. The conclusion follows validly from the two premisses; the maximal proposition would be superfluous in the set of premisses. Furthermore, with or without the aid of the premisses, the conclusion does not in any way follow from the maximal proposition. Second, as far as claim (B) goes, there does not appear to be any clear way in which the maximal proposition might be said to find this conclusion. It does not uncover the conclusion in any direct way: it does not validate the inference to the conclusion, and it does not support either of the premisses in the argument.

So Garlandus's example here leaves us with two questions. First, does he conceive of the use of maximal propositions in any way that makes his use of them compatible with his theory about them; and if so, what is it? And second, does he think that all arguments, including those that are Aristotelian syllogisms, need to be confirmed by a maximal proposition?

The solution to the first question can be found partly by considering another example Garlandus gives. Discussing an apparently well-established controversy over the status of a particular maximal proposition, Garlandus says that some masters deny that it is a maximal proposition because they say that every maximal proposition must serve some syllogism and they can see no syllogisms served by the proposition in the question. Garlandus believes it is a maximal proposition, and he gives the following argument as an example of a syllogism it serves.

> Suppose there is a question whether if one [set of] two is taken from one [set of] four and another [set of] two from another [set of] four, the remainder in the one case will be equal to that in the other case. Then prove [the following]: [1] Taking one [set of] two from one [set of] four and another [set of] two from another [set of] four is taking equals from equals. But [2] if you take equals from equals, the remainders are equal. Therefore, [3] if one [set of] two is taken from one [set of] four and another [set of] two from another [set of] four, the remainder in one case will be equal to that in the other case.[8]

If this is what Garlandus has in mind for the use of a maximal proposition, and I think it is, then his previous claims about maximal propositions look much better. The maximal proposition in this case is (2), and it does confirm or prove the argument. The conclusion is argued for by showing that it is an instance of the self-evident generalization in (2), so that (2) is (roughly speaking) the heart of the proof for the conclusion. And since the maximal proposition here proves the conclusion, it may in some loose sense be thought of also as finding the conclusion. (It "finds" the conclusion as such in virtue of certifying the inference which results in the conclusion.)

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[8] *Dialectica*, pp. 87.35–88.7. *Sit enim questio, utrum si duo auferantur de quatuor positis in una parte et alia duo de aliis quatuor positis in altera parte, totidem remaneant in altera parte de quibus duo sunt ablata, quot et in altera parte de quibus alia duo ablata fuerint. Etiam proba duo auferri de quatuor et alia duo auferri de aliis quatuor est auferri equalia de equalibus; at si de equalibus equalia demas, que relinquuntur equalia sunt; ergo si duo auferuntur de quatuor positis in una parte, et alia duo de aliis quatuor positis in altera parte, totidem remanebant in altera parte quot et in altera.*

But claim (C)—that maximal propositions are the sense of the premisses—fares no better in this example than in the preceding one, except in the trivial sense in which the maximal proposition might be thought of as the sense of itself (since the maximal proposition itself is a premiss in the argument), but even then it is the sense of only one and not both premisses of the argument. Furthermore, it now seems that Garlandus has given us two different and not necessarily compatible ways of using maximal propositions. The first, represented by the example concluding that every man is a substance, apparently applies a maximal proposition to a categorical syllogism to prove a categorical proposition (in some way as yet not clear); in this case, the maximal proposition is not used as a premiss in the argument and may be thought of as extrinsic to the argumentation. The second, represented by the example about equals being taken from equals, uses a maximal proposition as a premiss within the argumentation to prove a hypothetical proposition.

All these difficulties, including the one about claim (C), will find some resolution if we look closely at what Garlandus has to say about the second sort of Topic, the Differentiae.

It is plain that for Garlandus, as for Boethius, Differentiae are the more important of the two sorts of Topics. According to Garlandus, a Differentia rather than a maximal proposition is a Topic plain and simple (100.31), and his chapter on Topics is organized around the Boethian list of twenty-eight Differentiae. Following Boethius, his treatment of the Topics consists of listing the Differentiae and giving examples for each.

The two Topics *from the whole* are representative of Garlandus's treatment of the Differentiae.

> Next is the Topic *from the whole.* 'Whole' is used in two ways: either as a universal [whole], such as a genus, or as an integral whole, such as a house. Belief arises from a universal whole in five ways: by universally attributing something to the universal whole, such as 'If every animal is white, man is also white'; or by universally removing something from the universal whole, such as 'If no animal is white, man is not white either'; or by universally attributing the universal whole to something, such as 'If Socrates is every animal, he is a man'; or by universally removing the universal whole from something, such as 'If Socrates is no animal, he is not a man'; or by simply removing the universal whole, such as 'If it is not an animal, it is not a man.' The Topic *from the integral whole* arises in three ways: either by universally attributing something to the integral whole, such as 'If the whole house is white, the wall is also white'; or

by universally removing something from the integral whole, such as 'If none of the house is white, the wall is not white either'; or by simply positing the integral whole, such as 'If there is a house, there is a foundation.' "[9]

The very first example given in Garlandus's chapter on Topics, the one for the Topic *from definition,* is considerably more detailed than these representative examples for the Topic *from the whole;* and the argument Garlandus gives for the Topic *from definition* is a categorical syllogism. If we read these subsequent examples in the light of that first one for the Topic *from definition,* we can easily get the impression[10] that Garlandus's method of dialectic amounts to a method for reducing enthymematic inferences to syllogistic ones by using a Differentia to provide the missing proposition, so that we might think of Garlandus's theory of dialectic as a method employing Differentiae to reduce enthymemes to syllogisms.[11] Something like this theory of dialectic does seem to be the one that came to be adopted by the terminist logicians in the thirteenth century.[12]

But such a view of Garlandus's method would be mistaken, as we can see by considering his examples for the Topic *from an integral whole.* The first argument given for that Topic is "If the whole house is white, the wall is also white." Here we cannot reduce the enthymematic inference to a syllogistic one. 'House' is the middle term, and the inference is lacking a proposition relating house and wall. (The other extreme, 'white,' is already linked to the middle term 'house' in the antecedent of the conditional.) But what sort of proposition linking house and wall could we add to the antecedent? The only two possibilities are both blatantly false: 'Every house is a wall' and 'Every wall is a house.' Any reasonable proposition relating these two terms (such as 'A wall is a part of every house') introduces at least a fourth term into the conditional. Whatever the Topics are doing in this case, and hence presumably in all other cases as well, they are not reducing enthymemes to syllogisms. Furthermore, even if this view of Garlandus's theory were not mistaken on these grounds, it leaves maximal propositions without any role or function in Garlandus's theory. So, for more than one reason, this account of Garlandus's theory looks worrisome.

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[9] *Dialectica,* p. 103.1–13. *Sequitur locus a toto.* 'Totum' *vero duobis modis dicitur, aut universale, ut genus, aut integrum totum, ut domus. Ab universali toto fit fides quinque modis: aut aliquid dando universaliter illi, ut* 'si omne animal est album, et homo est albus', *vel removendo universaliter aliquid ab illo, ut* 'si nullum animal est album, nec homo est albus', *vel illud universaliter attribuendo alicui, ut* 'si Socrates est omne animal, est homo', *aut illud universaliter removendo ab aliquo, ut* 'si Socrates nullum animal est, homo non est', *aut ipsum simpliciter auferendo, ut* 'si non est animal, non est homo'. *Locus ab integro toto tribus modis fit: aut illi dando universaliter aliquid, ut* 'si tota domus est alba, et paries est albus', *aut auferendo universaliter aliquid ab illo, ut* 'si nichil domus est album, nec paries est albus', *vel illud simpliciter ponendo, ut* 'si domus est, fundamentum est'.

[10] See, e.g., Eleonore Stump, *Boethius's De topicis differentiis* (Ithaca, N.Y.: Cornell University Press, 1978), pp. 226–228.

[11] Technically, the Topically dependent arguments Garlandus gives are not enthymemes but conditional propositions. By a true conditional, however, Garlandus means more than just a conditional whose consequent is not false if its antecedent is true; he also requires as a criterion for a true conditional that the consequent can be acceptably inferred from the antecedent. The difference between enthymemes and conditional propositions is not great given this view of conditional propositions. See also note 23.

[12] See Stump, "Topics: Their Development."

Garlandus's theoretical treatment of the Differentiae is instructive for formulating a better interpretation of his work on Topics if we understand that treatment in the light of the examples illustrating the use of the Topic *from the whole*. The description of a Topic as "that from which an appropriate argument for the question at issue is drawn" is a proper description only of Differentiae, according to Garlandus, because an argument is drawn only from the Differentiae and not from the maximal proposition. "For," he says, "when some question is proposed, first some Topic [i.e., Differentia] is found from which the argument is drawn, and then only is the maximal proposition given" (101.23–31). Furthermore, he claims, the maximal propositions are themselves also drawn from the Differentiae (101.7–12 and 101.17–20).

What is the nature of the arguments that are supposed to be drawn from the Differentiae? Garlandus in several places refers to the conditional propositions given as examples for the Differentiae as arguments (e.g., "If the whole house is white, the wall is also white").[13] But he also indicates in various places that he thinks of the questions to be settled by Topical arguments as categorical questions, that is, questions in which a categorical proposition is in doubt.[14] These two considerations strongly suggest that the arguments Garlandus is thinking of, when he says that arguments are drawn from the Differentiae, are simple hypothetical arguments consisting of one conditional premiss and one categorical premiss; these premisses together prove the categorical conclusion by *modus ponendo ponens* or *modus tollendo tollens*. For instance, in the first example of an argument that Garlandus gives for the Topic *from the integral whole*, the question at issue should be taken to be 'Is the wall white?' The argument for the affirmative conclusion is represented in the text simply by its first premiss, 'If the whole house is white, the wall is also white.' The complete argument would consist of this conditional as a first premiss, the assertion of the conditional's antecedent as a second premiss, and the consequent of the conditional as the conclusion.[15] According to Garlandus's theory of the Differentiae, then, when the question 'Is the wall white?' is proposed, we first choose some Differentia (the choice is left to the arguer's intuitions), and then we draw an *argument* from that Differentia. In practice, Garlandus draws no more than a conditional proposition. But since the argument he has in mind is a simple hypothetical syllogism, all he really needs to find is a suitable conditional proposition. The question determines the conclusion (or, more precisely, the categorematic terms of the conclusion) since the conclusion must constitute a positive or a negative answer to the question. Given the conditional proposition and the conclusion, the second premiss of the argument will be obvious.

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[13] For example, *Dialectica*, pp. 102.21, 105.21–22, 105.31–32, and 106.4–7.

[14] For example, *Dialectica*, pp. 102.9, 111.29, 111.38, 112.2, 112.18, 112.21.

The argument or the conditional proposition is apparently drawn from the Differentia by means of the "modes" or ways in which arguments arise. For example, for the Differentia *from the genus* (or, as Garlandus has it, *from the universal whole*) Garlandus gives five modes for arguments. These modes are formulae for the antecedent of the conditional proposition; they give the quantity and quality of the antecedent and stipulate whether the Differentia (or an instance of the Differentia) is the subject or the predicate in the antecedent. For instance, one way an argument arises from the universal whole, according to Garlandus, is by universally attributing something to the universal whole; and he gives as an example 'If every animal is white, man is also white.' Here *animal* is an instance of the Differentia *from the universal whole*; it is the universal whole or genus of man. And 'white' is universally attributed to 'animal' in the antecedent of the conditional. There is no overt rule for finding the consequent of the conditional, but the mode for the antecedent seems to govern the consequent as well. Sometimes the quantity shifts from universal in the antecedent to indefinite in the consequent, but the quality is the same, and so is the position in the proposition of the Differentia or its instance; that is, if the mode specifies that 'animal' is in the subject position in the antecedent, 'man' will be in the subject position in the consequent.[16] So the argument provided by the Differentia—or more precisely, the conditional proposition provided by the Differentia—is found by using one of the modes Garlandus lists.

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[15] See in this connection pp. 111.29–32 and 111.33–36. In both cases here, Garlandus gives a categorical question and provides only a conditional proposition as the argument appropriate to the question.

Once the argument is found, on Garlandus's theory of Differentiae the maximal proposition for that argument is given; and it, too, is drawn from the Differentiae. For many of the Differentiae, including those I have just been discussing, Garlandus gives no maximal propositions. But the examples employing maximal propositions, especially the very first example for the Topic *from definition*, suggest that the modes which give us the conditional proposition also give us the appropriate maximal proposition. For instance, when the mode is "universally attributing something to the universal whole" (or genus), the maximal proposition is "What is universally attributed to the genus is also attributed to the species." And since the mode that gives the maximal proposition is itself drawn from or dependent on the Differentia (in ways that will become plainer shortly), the maximal proposition too may be thought of as drawn from the Differentia.

We can now see fairly clearly what the function of the maximal propositions is, on Garlandus's theory. The Differentiae provide conditional propositions which are the basis for simple hypothetical syllogisms. The maximal propositions are hard to connect appropriately with these hypothetical syllogisms in any way but one: they demonstrate the truth of the conditional premiss of the hypothetical syllogism. They do so in just the way Garlandus illustrated in his example about taking equals from equals; that is, the conditional proposition of the hypothetical syllogism is shown to be an instance covered by the maximal proposition. On this interpretation, it is possible to make Garlandus's claim (C), that a maximal proposition contains the sense of the premisses of an argument, more intelligible. Insofar as the conditional premiss is an instance of the maximal proposition, the maximal proposition might be thought of, in a loose way, as the sense of that conditional. There are still problems with claim (C), of course. This application of (C) does not allow the maximal proposition to be the sense of *two* premisses, as Garlandus says it is; and it does not explain the peculiarity of the example Garlandus gives to show that a maximal proposition is the sense of the premisses.[17]

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[16] This explanation holds good only for those Differentiae for which Garlandus gives modes specifying the antecedent of the conditional. When a maximal proposition is given, the conditional is specified by the maximal proposition, and there may not be the same symmetry between antecedent and consequent. See, for example, *Dialectica* p. 109.10–11 in connection with 109.15–17 and 109.22–24.

To see more clearly how Garlandus's theory works, we can apply it in detail to one of the examples we have been considering, the Topic *from the universal whole* (or genus). Suppose there is a question whether man is white. We can make an argument using the Topic *from the universal whole* if we take the genus of one of the terms in the question; and suppose we take the genus of *man*. Then there are five modes or ways in which we can make an argument; suppose we take the first mode, "universally attributing something to the genus." The "something" to be attributed in this case ought plainly to be the predicate *white*, since we want 'white' as another term in the argument. So we will make a conditional proposition in this way:

(1) If every animal is white, man is also white.

To derive an affirmative answer to the question at issue, we assert the antecedent:

(2) Every animal is white.

And by *modus ponendo ponens* we derive the conclusion:

Therefore (3) man is white.

By consulting the mode again we find the appropriate maximal proposition for this argument:

(MP) What is universally attributed to the genus is also attributed to the species.

And this maximal proposition proves the conditional premiss by a categorical argument:

(i) Animal is the genus of man.
MP (ii) What is universally attributed to the genus is also attributed to the species.

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[17] It is worth remembering in this connection, though, that in various places Garlandus refers to the conditional premisses alone as arguments; see, for example, pp. 102.20–28, 105.31–32, 106.4–7, and 106.29–31.

∴ (iii) If whiteness is universally attributed to animal, it is also attributed to man—or, If every animal is white, man is also white.[18]

The most important parts of this theory are the use of the Differentia and the maximal proposition in connection with the conditional proposition.[19] The rest of the apparatus in Garlandus's account—the question, the hypothetical syllogism, which concludes with an affirmative or negative categorical answer to a dialectical question—seems to be part of what Garlandus has inherited from Boethius and preserved because it was part of his intellectual legacy from antiquity. What Garlandus himself is really interested in is the usefulness of the Topics for the analysis of conditional propositions. The Differentia finds or provides a conditional premiss, and that conditional premiss is proved by the maximal proposition in a categorical argument that has the conditional as conclusion.[20] The study of Topics is propaedeutic to the study of hypothetical syllogisms, according to Garlandus (86.18–20); and on his view, all the Topics are useful for hypothetical syllogisms. It seems to me that Garlandus takes them to be useful for hypothetical syllogisms and propaedeutic to their study because he sees them primarily as means for providing true conditionals and for demonstrating the truth of a given conditional. The maximal propositions enable the arguer to judge the truth or falsity of the conditional premisses in these hypothetical arguments, and the Differentiae are the means for finding true conditional premisses.

This interpretation of Garlandus's theory explains the otherwise bewildering inanity of some of Garlandus's examples. Surely there never was a philosopher seriously interested in the question whether man is white; and the argument Garlandus gives in answer to that question—"If every animal is white, man is white"—will yield the false conclusion (and Garlandus must have known it was false[21]) that man as a species is white.[22] The oddness of Garlandus's examples is mystifying until we see that he is not interested in this or that particular question or conclusion but in the forms of acceptable inferences. He is not interested in settling issues about man's whiteness; his concern is with all inferences[23] of the type 'If every animal is ——, then man is ——,' where the same expression is to fill both blanks. Given Garlandus's concern, it is not unlikely that he deliberately chooses apparently inane examples. The peculiarity of the predicate 'white' in the example here, for instance, serves something of the same purpose that would be served by filling the blanks with a variable: it focuses attention on the form of the inference and not on its content.

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[18] For other examples in which the conclusion is a conditional proposition, apparently meant to be proved in this same way, for example, see p. 107.17–33.

[19] To see that the categorical argument proving the conditional proposition takes second place in Garlandus's theory to the hypothetical argument, we need just to remember that Garlandus claims that only Differentiae and not maximal propositions provide arguments. If Garlandus were not thinking of arguments in this connection as the hypothetical arguments which are provided by the Differentiae, he would not make this claim because maximal propositions provide the categorical arguments in which they are used, just as the Differentiae provide the hypothetical arguments.

[20] The two hard cases for my view are the Topic *from transsumption* and the Topic *from authority*. But Garlandus discounts the latter Topic as anomalous (p. 113.16–21). And if we remember that the former Topic has to do with transsumption and so take the argument here to be basically 'If love of wisdom should be pursued, philosophy should be pursued,' the example Garlandus gives for this Topic will come into line with the interpretation I have been arguing for. The similar example on p. 102.18–19 supports such a reading of the example for the Topic *from transsumption*.

There is, of course, something slightly misleading in talking about the form of the inference in this case since these Topically dependent inferences are supposed to be acceptable not in virtue of their syllogistic form but in virtue of a certain relationship between two of the terms in the inference, or between two of the things signified by those terms. The modes that Garlandus gives for some of the Differentiae, which spell out the sorts of conditional proposition acceptable for those Differentiae, are based on the nature of the Differentia in each case; and in this connection it is important to note that on Garlandus's account the ontological status of the Differentiae is not always the same. In some cases, he thinks of the Differentia as a linguistic entity (a *vox*). For example, the inferences for the Topic *from the universal whole* (or genus) are acceptable inferences in Garlandus's view because of the nature of the linguistic entity 'genus' (cf.100.31–101.1). It is surprising, in this connection, to find Garlandus sometimes giving as a Differentia not, for example, the universal but the specific instance of that universal. Where we would expect him to list the Differentia in question as *from genus,* for instance, he more than once gives it as *animal* instead;[24] and in those contexts he means the Differentia to be the word 'animal'[25] rather than the particular genus *animal.* On other occasions, especially in the case of the Topics *from causes,* he specifies that the Differentia is not a linguistic or conceptual entity but instead some part of extramental reality. He says, for example, that it is the nature of iron itself which makes acceptable the inference "If there is no iron, there is no sword,"[26] so that the Differentia here is just iron, not the word or concept 'iron.' His criterion for determining the status of a Differentia either as a linguistic or an extramental entity is simply that the Differentia must be that whose nature makes a particular inference acceptable.

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[21] For example, one of Boethius's standard examples is that Ethiopians are black; see, for example, *De top. diff.* 1179A13.

[22] It is possible to take the question here as 'Is every animal white?' The argument then will be, basically, that not every animal is white because man is not white. In this case, the conclusion of the argument will not be false, but the peculiarity of the example is scarcely decreased.

[23] For the ambiguous use of the Latin 'si' ('if') to mark sometimes an inference and sometimes an implication, see, for example, Ivo Thomas, "Kilwardby on Conversion," *Dominican Studies* 6 (1953) pp. 68–71.

On the basis of that criterion as well as the relationship between Differentiae and maximal propositions, he also allows and discusses specific maximal propositions which are subsumable under more general maximal propositions. For example, he seems to think of this as a maximal proposition: 'What is universally attributed to animal is attributed to man';[27] and he subsumes it under the more general principle that what is universally attributed to the whole is attributed to the part (88.28–36).[28] He goes even further along this line by claiming that all Topics can be subsumed under the two most general Topics, the Topic *from the antecedent* and the Topic *from the consequent.* Corresponding to each of these is a maximal proposition; as Garlandus gives these, they amount to the rule for *modus ponendo ponens* and the rule for *modus tollendo tollens,* respectively (114.3–16).[29]

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[24] For example, *Dialectica,* pp. 100.31–101.1 and 101.7–15.

[25] In such cases, he is apparently thinking of the word 'genus' as signifying not an extramental entity but simply other linguistic entities such as the word 'animal' (see, for example, p. 105.25–30). This notion is reminiscent of the medieval account of words of second imposition, though Garlandus's use of the notion does not seem particularly felicitous.

[26] *Dialectica,* p. 105.10–14; cf. also p. 105.5–9.

[27] By 'attributed' (*'convenit'*) in this context he plainly wants the reader to understand 'correctly (or appropriately) attributed.'

[28] He seems not to notice or not to mind that allowing such specific maximal propositions violates one of the criteria for a maximal proposition which he himself gives, namely, that no proof can be found for a maximal proposition (p. 87.4–8).

[29] The function of these two maximal propositions is different from that of the maximal propositions previously given in that their function is not to confirm or demonstrate the truth of the conditional premiss of a hypothetical argument but rather to validate the inference from the two premisses to the conclusion. It seems to me possible that Garlandus is thinking of this broad function of these ultimate maximal propositions when he says that maximal propositions contain or constitute the sense of an argument.

We can summarize Garlandus's theory of the Topics, then, by saying that he is interested in them primarily as guarantors of the validity of inferences, especially as warrants for the inference from the antecedent to the consequent in a conditional proposition.

Hypothetical Syllogisms

With this understanding of Garlandus's theory of Topics, we can turn to his chapter on hypothetical syllogisms. Though Garlandus devotes considerable space to such issues as the proper way to negate a conditional proposition, the basic structure of the chapter consists in a lengthy discussion of a variety of conditional propositions and the ways of constructing hypothetical syllogisms around them. Garlandus's varieties of conditional propositions can be divided into five groups: (1) simple conditionals in which both the antecedent and the consequent are categorical propositions; (2) composite conditionals in which the antecedent is a categorical proposition but the consequent is a conditional; (3) composite conditionals in which the antecedent is a conditional but the consequent is a categorical; (4) composite conditionals in which both the antecedent and the consequent are conditionals and the whole composite conditional contains four terms; and finally (5) composite conditionals composed of two conditionals but containing only three terms. All of Garlandus's examples of such conditionals are constructed in a peculiar way. Each categorical proposition contained in the conditional proposition is one in which there is only one term or in which the other term is a vague pronoun, such as 'there is a man' or 'it is a man' (*est homo*); and so a typical simple conditional proposition is "If it is a man, it is an animal." The reasons for this feature of Garlandus's theory are not clear.

Hypothetical syllogisms are constructed in only two ways, Garlandus says, either by *modus ponens* or by *modus tollens* (e.g., 128.33–36, 151.3–6). The only exception to this rule is if the two terms in a simple conditional proposition are equals or immediate (that is, contradictory) opposites. In that case, Garlandus maintains, we can get valid hypothetical syllogisms also by affirming the consequent or by denying the antecedent (129.27–130.12). For example, since 'man' and 'capable of laughter' are equals—each referring to all and only those things referred to by the other (107.4–7)—the following are valid arguments on Garlandus's view (129.29–35):

(1) If it is a man, it is capable of laughter.
But it is not a man.
Therefore, it is not capable of laughter.
(2) If it is a man, it is capable of laughter.
But it is capable of laughter.
Therefore, it is a man.

That this part of Garlandus's theory of hypothetical syllogisms is firmly grounded in his theory of Topics should be clear. The only two inference rules or warrants which he licenses (*modus ponens* and *modus tollens*) are by his own account Topical maxims. The exceptions, those cases in which a valid argument is produced by affirming the consequent or denying the antecedent, are both discussed in detail in his chapter on Topics[30] and are themselves warranted by Topical maxims. This remains Garlandus's only method for constructing hypothetical syllogisms throughout the entire chapter, no matter how complex the conditional premiss of the hypothetical syllogism may be; and in considering the more complicated kinds of conditional premiss around which Garlandus constructs hypothetical syllogisms, I will leave the syllogism to one side and concentrate on the conditional proposition. For each variety of hypothetical syllogism which Garlandus discusses, however, the validity of the hypothetical syllogisms, both the normal and the exceptional cases, is guaranteed by Topical maxims, on Garlandus's account.

Garlandus begins his discussion of hypothetical syllogisms by considering cases of simple conditionals, in which there is a simple conditional premiss, a categorical premiss, and a categorical conclusion inferred by *modus ponens* or *modus tollens*. Since, as we saw in the investigation of Garlandus's treatment of Topics, Topics for Garlandus also justify conditional propositions by warranting the inference from antecedent to consequent, in these cases of hypothetical syllogisms involving only one simple conditional premiss the *acceptability* of hypothetical syllogisms is also dependent on Topics because Topics verify the conditional premiss in the hypothetical syllogism.

As for composite conditionals of type (2), Garlandus holds that there are eight kinds of composite conditional propositions in which the antecedent is a categorical and the consequent is itself a conditional. They are these:[31]

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[30] For Garlandus's discussion of the Topic *from equals*, see *Dialectica*, p. 107.2–30; for his discussion of the Topic *from immediate opposites*, see *Dialectica*, pp. 108.34–112.13, esp. p. 111.15–20.

(1) $a \rightarrow (b \rightarrow c)$
(2) $a \rightarrow (b \rightarrow \sim c)$
(3) $a \rightarrow (\sim b \rightarrow c)$
(4) $a \rightarrow (\sim b \rightarrow \sim c)$
(5) $\sim a \rightarrow (b \rightarrow c)$
(6) $\sim a \rightarrow (b \rightarrow \sim c)$
(7) $\sim a \rightarrow (\sim b \rightarrow c)$
(8) $\sim a \rightarrow (\sim b \rightarrow \sim c)$

In discussing these, he says that each has a certain nature (147.36–148.5), by which he apparently means that *in order to be true* each conditional which is in one of these forms must have a certain nature or meet certain criteria. These criteria vary with each conditional. In the case of the first conditional $[a \rightarrow (b \rightarrow c)]$, for example, Garlandus intends that the first term *a* must imply the third term *c* and that *a* must also imply the second term *b*.[32] The criteria with the conditional propositions which they imply can be symbolized as follows:[33]

(1′) $[(a \rightarrow c) \wedge (a \rightarrow b)] \rightarrow [a \rightarrow (b \rightarrow c)]$
(2′) $[(a \rightarrow \sim c) \wedge (a \rightarrow b)] \rightarrow [a \rightarrow (b \rightarrow \sim c)]$
(3′) $[(a \rightarrow c) \wedge (a \rightarrow \sim b)] \rightarrow [a \rightarrow (\sim b \rightarrow c)]$
(4′) $[(a \rightarrow \sim c) \wedge (a \rightarrow \sim b)] \rightarrow [a \rightarrow (\sim b \rightarrow \sim c)]$
(5′) $[(\sim a \rightarrow c) \wedge (\sim a \rightarrow b)] \rightarrow [\sim a \rightarrow (b \rightarrow c)]$
(6′) $[(\sim a \rightarrow \sim c) \wedge (\sim a \rightarrow \sim b)] \rightarrow [\sim a \rightarrow (b \rightarrow \sim c)]$
(7′) $[(\sim a \rightarrow c) \wedge (\sim a \rightarrow \sim b)] \rightarrow [\sim a \rightarrow (\sim b \rightarrow c)]$
(8′) $[(\sim a \rightarrow \sim c) \wedge (\sim a \rightarrow \sim b)] \rightarrow [\sim a \rightarrow (\sim b \rightarrow \sim c)]$

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[31] *Dialectica*, p. 147.32–35.

"'si est a, cum sit b est c'
'si est a, cum sit b non est c'
'si est a, cum non sit b est c'
'si est a, cum non sit b non est c'
'si non est a, cum sit b est c'
'si non est a, cum sit b non est c'
'si non est a, cum non sit b est c'
'si non est a, cum non sit b non est c.'"

[32] In fact, what he says is that the third term must follow from the second by means of the first (147.12–13) and that the first term can never be without the second (148.3–4). His examples make it clear that by these criteria he means only $(a \rightarrow c) \wedge (a \rightarrow b)$; certainly that is all he needs.

[33] Garlandus works out and presents the criteria for each conditional by considering a

It should be clear that the last seven cases simply ring the changes on (1′). (1′) is valid; hence, if the criteria spelled out in the antecedent of (1′) are met, the consequent of (1′), namely, (1), is true.

Garlandus's procedure is much the same in the case of those composite conditionals which consist of a conditional antecedent and a categorical consequent and in the case of those conditionals that consist of a conditional antecedent and a conditional consequent and have four rather than three terms. In each of the many varieties of conditionals falling under these two groups, he specifies criteria for the truth of the conditional proposition under consideration.

In each such case, the relevant criteria can be spelled out as a conjunction of simple conditional propositions, as in the case considered above where the truth of $[a \rightarrow (b \rightarrow c)]$ depends on the conjunction of the two simple conditional propositions $(a \rightarrow b)$ and $(a \rightarrow c)$. For example, in discussing the conditional $[(a \rightarrow b) \rightarrow c]$, Garlandus gives two conditions: first, *b* implies *c* (151.27–31); and second, *a* neither implies *b* nor is incompatible with *b* (152.8–9). As for composite conditionals composed of two simple conditionals and having four terms, Garlandus tends to treat these as if they were in fact just a conjunction of the two simple conditionals (156.11–157.20). Furthermore, Garlandus says of these composite conditionals that the first term must imply the third and not the second and that the fourth must be implied by the second but not by the third (156.13–15). He discusses no criteria for the truth of a composite conditional composed of two simple conditionals but having only three terms, such as 'If it is a man, it is an animal [and] if it is an animal it is animate,' but it is plain that he treats this sort of composite conditional also just as a conjunction of two simple conditional propositions (157.22ff.).

It is not at all clear to me that Garlandus's account of the truth of composite conditionals is in every case correct. But what is important for our purposes here is that he is plainly interested in the truth of the conditional premiss in a hypothetical syllogism, as well as in the validity of the syllogism itself. In every case, the truth of the composite conditional proposition is dependent on one or more simple conditionals, whose truth is itself dependent on and guaranteed by Topics. Hence, the acceptability of hypothetical syllogisms is based on Topics in two ways: both the validity of the syllogism and the truth of the conditional premiss are Topically dependent.

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sophisma which can arise in connection with each conditional; see *Dialectica*, pp. 148.6–151.2.

Categorical Syllogism

This impression of Garlandus's account is strengthened when we compare what he says about categorical syllogisms, which are on his view also Topically dependent.[34]

"Categorical syllogisms," he says, "are aided by the Topics *from the whole* and *from the part* and *from an equal*" (114.18). As a maximal proposition for the Differentia *from the whole,* Garlandus gives 'What is universally attributed to the whole is also attributed to the part' (88.18); and he uses it to confirm this argument (which he takes from Boethius):

(1) Rule by a king is a longer-lasting good than rule by a consul, when both are good.
(2) A longer-lasting good is better than a good which lasts a shorter time.
∴ (3) Rule by a king is better than rule by a consul.

On Garlandus's account, the maximal proposition confirms this argument in the following way. "*A longer-lasting good than rule by a consul* is the whole for *rule by a king*. Therefore, if *being better than rule by a consul* is attributed to *a longer-lasting good,* then it must be that *rule by a king,* which is a part of *a longer-lasting good,* is also better than *rule by a consul.*"[35] What Garlandus says here may seem confused and confusing unless we see that he is trying to read the argument about rule by a king as a three-term syllogism. The passage just quoted indicates that the three terms are

A: rule by a king
B: longer-lasting good than rule by a consul
C: better than rule by a consul

The formulation of the maximal proposition for this example suggests that Garlandus is taking the indefinite premisses of the original argument as universals, so that he apparently understands the argument in its logical or analyzed form to be

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[34] *Dialectica*, pp. 86.4–20, 114.18, and 115.4–11.

[35] *Dialectica*, p. 88.19–21. *"Diuturnius vero bonum consulatu totum est regni; si ergo diuturniori bono convenit melius esse consulatu necesse est, ut et regnum, quod est pars diuturnioris boni, melius sit consulatu."*

(1′) Every A (rule by a king) is B (a longer-lasting good than rule by a consul).
(2′) Every B (longer-lasting good than rule by a consul) is C (better than rule by a consul).
∴ (3′) Every A (rule by a king) is C (better than rule by a consul).

In short, Garlandus understands the argument as a first-figure syllogism in *Barbara*, with the major and minor premisses reversed in order. The maximal proposition that is supposed to confirm this argument is 'What is universally attributed [i.e., being better than rule by a consul] to the whole [i.e., a longer-lasting good than rule by a consul] is also attributed to the part [i.e., rule by a king].' Given Garlandus's example here and the way he uses whole and part in this connection, it seems plain that this maximal proposition amounts to a rule for or a formula covering the inference in every first-figure syllogism in *Barbara*. Every syllogism of the form 'Every B is C and every A is B; therefore, every A is C' will count as an argument in which what is universally attributed (in the first premiss) to the whole (whose status as whole is spelled out in the second premiss) is also universally attributed to the part (in the conclusion).

The second maximal proposition for the Differentia *from the whole*, suggested in the discussion of that Differentia, is 'What is universally removed from the whole is also removed from the part' (103.1–6). The same or similar reasoning as that we just applied to the first maximal proposition for this Differentia indicates that this maximal proposition is a rule for or a formula covering the inference in the first-figure syllogism *Celarent*. Every syllogism of the form 'No B is C and every A is B; therefore, no A is C' will count as an argument in which what is universally removed from the whole is also removed from the part.

Since the other moods of the syllogism are reducible to *Barbara* and *Celarent*, as Garlandus knows, he seems committed to the view that categorical syllogisms too need Topics to be valid. It is apparently his view, then, that all inferences, whether in categorical or hypothetical syllogisms, are dependent on the Topics for their validity; and in the case of hypothetical syllogisms, the acceptability of the syllogism is also Topically dependent.[36]

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[36] In this essay I have investigated only a small portion of Garlandus's work on categorical and hypothetical syllogisms. For a philosophical examination of a different part of Garlandus's work on syllogisms, see D. P. Henry, "The Singular Syllogisms of Garlandus Compotista," *Revue Internationale de Philosophie*, 113 (1975), 243–270.

Conclusion

Garlandus's theory of Topics is clearly at least as much an expression of his views on metaphysics as of his views on logic; and though there is some ordering among the Topics,[37] it is much more a metaphysical than a logical ordering. His account of conditional propositions and hypothetical syllogisms, then, though it is rich and complicated, is a long way from being a formal logical system. If the same is true of early twelfth-century logic (and I will argue in the next two essays that it is), then it is possible to understand somewhat better the change toward Aristotelianism in logic in the second half of the twelfth century. By comparison with Garlandus's approach, Aristotelian syllogistic is formal and systematic; it looks much more scientific. The shift away from Aristotelianism in logic which takes place in the second half of the thirteenth century should be understood, then, not as a return to early scholastic logic, of the sort represented by Garlandus, but as a further attempt on the part of scholastic philosophers to structure and formalize their logical system.

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37. Cf. Stump, *Boethius's De topicis differentiis*, pp. 237–247.

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Abelard on the Topics

Abelard's writings on the Topics are voluminous; the section covering this subject in his basic logic text *Dialectica* is over two hundred pages long (in de Rijk's edition),[1] occupying fully a third of the book, and he also wrote a commentary on Boethius's *De topicis differentiis.* Nonetheless, though there has been some detailed and insightful examination of Abelard's theory of Topics among contemporary scholars,[2] we are still a long way from understanding this part of Abelard's work on logic; and the relation between his treatment of the Topics and treatments found in other twelfth-century commentaries and treatises is obscure. In this essay, I examine the general character of Abelard's discussion of Topics to show its place in the *philosophical* tradition between Garlandus Compotista and the thirteenth-century terminists; and then I consider in detail Abelard's discussion of those particular Topics which are the principal concern of early twelfth-century logic treatises to help determine the place of Abelard's work in the *historical* tradition of the twelfth century. In what follows I concentrate on Abelard's *Dialectica,* leaving to one side his commentary on Boethius. I think that it will be some time before a definitive account of Abelard's work on Topics can be written, and I am not attempting to do so here. For my purposes it is enough to make a preliminary study

This essay is a revision of "Boethius's Theory of Topics and Its Place in Early Scholastic Logic," published in *Atti congresso internazionale di studi Boeziani,* ed. Luca Obertello (Rome: Editrice Herder, 1981), pp. 249–262.

[1] *Dialectica,* ed. L. M. de Rijk, 2d ed. (Assen: Van Gorcum, 1970).

[2] Cf. Jan Pinborg, *Logik und Semantik im Mittelalter* (Stuttgart-Bad Cannstatt: Frommann-Holzboog, 1972); and "Topik und Syllogistik im Mittelalter", in *Sapienter Ordinare: Festgabe fuer Erich Kleineidam* (Erfurter Theologische Studien, 24), ed. F. Hoffmann, L. Scheffczyk, and K. Feiereis (Leipzig: St.-Benno Verlag, 1969), pp. 157–178. Also cf. Otto Bird, "The Formalizing of the Topics in Mediaeval Logic," *Notre Dame Journal of Formal Logic,* 1 (1960), 138–149; and "The Logical Interest of the Topics as Seen in Abelard," *Modern Schoolman,* 37 (1959), 53–57. And see Jean Jolivet, *Arts du langage et théologie chez Abelard* (Paris: Librairie Philosophique J. Vrin, 1969), pp. 143–174.

of Abelard's major work, *Dialectica*, investigating in detail Abelard's discussion of Topics there. (In the following essay I will say something more about Abelard's commentary on Boethius's *De top. diff.*).

A comparison of the tables of contents of Garlandus's *Dialectica* and Abelard's will suggest some of the fundamental differences between them. Garlandus's treatment of hypothetical syllogisms is roughly five times as long as his treatment of categorical syllogisms, and it is by far the lengthiest and most elaborate part of the book. In Abelard, the section on hypothetical syllogisms seems perfunctory, and the section on categorical syllogisms is almost twice as long. What is at least as significant, if not more so, is that Abelard places his discussion of Topics before the section on hypothetical syllogisms but after the section on categorical syllogisms, unlike Garlandus, who puts his treatment of the topics before any discussion of either sort of syllogism.

This arrangement suggests that in Abelard there is a new or growing interest in categorical syllogisms and an attempt to divorce them from the Topics and from Topical inferences, and that suggestion is borne out by what Abelard has to say in his discussion of Topics. The section on Topics is by far the longest part of Abelard's *Dialectica*, and a good deal of that section is devoted to arguing directly or indirectly that categorical syllogisms are not Topical inferences and that generalizations governing or describing categorical syllogisms are not maximal propositions. In this respect, he departs from Garlandus, who claims explicitly that Topics provide the warrants for categorical as well as hypothetical syllogisms,[3] and he foreshadows the terminists, who also think of categorical syllogisms as altogether independent of Topics. In his interest in hypothetical syllogisms and in the close association he sees between Topics and hypothetical syllogisms, however, Abelard resembles Garlandus and differs from the terminists, who generally neglect hypothetical syllogisms and draw no connection between them and Topics. In the general structure of his work on logic, then, Abelard is an almost perfect intermediary between the eleventh and the thirteenth centuries. In his introduction to his edition of the *Dialectica*, de Rijk argues that Abelard knew Aristotle's *Prior Analytics* but probably not the *Posterior Analytics*.[4] As we shall see, this claim seems not only justified by Abelard's general theory of Topics but also indicative of the stage of development in the history of logic represented by Abelard's work.

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[3] *Garlandus Compotista. Dialectica*, ed. L. M. De Rijk (Assen: Van Gorcum, 1959), p. 114.17–18.

[4] *Dialectica*, pp. XVII–XVIII. All references hereafter to the *Dialectica* will be given in parentheses in the text.

Abelard's presentation of hypothetical syllogisms is straightforward, devoid of the subtle polemical arguments that mark his presentation of the Topics; and, as far as I can see, there are no significant *philosophical* differences between his general account of hypothetical syllogisms and the one found in Garlandus's work. The study of Topics is propaedeutic to the study of hypothetical syllogisms, on Abelard's view, because acceptability of hypothetical syllogisms depends on the truth of conditional propositions (among other things) and the truth of conditional propositions is dependent on the Topics; so the study of Topics helps us to discern and to construct *true* conditional propositions (253.4–15).

To understand how Topics are related to conditional propositions, it is important to understand what Abelard takes to be the truth-conditions for such propositions. On Abelard's view, a conditional proposition is true just in case the consequent is validly inferred from the antecedent. Abelard's understanding of validity, however, is imprecise and ambiguous. In describing true conditionals, Abelard gives a variety of formulations:[5]

(i) the inference in a conditional proposition "consists in the necessity of the consecution, that is, in the fact that the sense of the antecedent compels the sense of the consequent." [253.28–29]

(ii) the necessity of the consecution of a conditional proposition, strictly speaking, consists in the fact that the antecedent cannot be true without the consequent and by itself compels the consequent. [283.39–284.2]

(iii) "the truth of the consecution [of a conditional proposition] consists in necessity, namely, in the fact that what is said in the antecedent cannot be without that which is put forward in the consequent." [271.28–30]

Whether these various formulations can all be made consistent with one another is not clear to me; but for my purposes here a rough formulation is sufficient. In general, Abelard takes a conditional proposition to be true just in case the relationship between the antecedent and the consequent is strict implication; and frequently he adds a second condition, namely, that the meaning of the antecedent necessarily contains or "compels" the meaning of the consequent.

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[5] Cf. also Bird, "Formalizing of the Topics," p. 142.

On Abelard's view, the truth of all conditional propositions except those that are valid categorical syllogisms in hypothetical form is dependent on the Topics (what he would say about conditionals such as 'If p, then p' is not clear); but he denies energetically that valid categorical syllogisms or their hypothetical counterparts are in any way Topically dependent. It is not inconceivable that this change from the older theory of Topics as represented by Garlandus is original with Abelard; at any rate, he argues elaborately and polemically for his view, with numerous attacks on other, unnamed philosophers whose claims that certain logical laws are maximal propositions would entail that valid categorical syllogisms are in fact dependent on Topics. (I will say more about this point in the next essay.)[6]

His general argument for separating categorical syllogisms from Topics takes the following form. He begins by distinguishing between perfect and imperfect inferences. A perfect inference is one in which the sense of the consequent is manifest from the complexion or formal construction of the antecedent and in which the construction of the antecedent is such that it contains in itself also the construction of the consequent (253.31–34). In practice, he takes a valid categorical syllogism cast in the form of a conditional proposition to be a paradigmatic perfect inference—for example, 'If every man is an animal and every animal is animate, then every man is animate' (see 253.34–254.1; 254.31–36). An imperfect inference, on the other hand, is one that lacks "perfection of consecution" but has nonetheless "perfection of necessity" (255.12–13). That is, an imperfect inference is one in which the formal construction of the antecedent does not contain the construction of the consequent, but the conditional is nonetheless true because there is a necessary connection between antecedent and consequent. The necessity such inferences have, however, does not depend on the form of the inference but instead is dependent on the nature of things. For example, the conditional 'if it is an animal, it is animate' is an imperfect inference, according to Abelard. The construction or the form of this conditional is not enough to guarantee its truth, but, Abelard says, "with regard to the nature of things, which we know, we are certain about the truth of the conditional" (255.15–16). In other words, this conditional holds because of a necessity in the nature of things, namely, that nothing can be an animal without being animate; and we know the truth of the conditional because we know the nature of the things on which the truth of the conditional depends.

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[6] Cf., e.g., p. 328.27ff. and 352.13ff.

What I am calling a conditional proposition is what Abelard and other medieval philosophers frequently call a *consequentia* or consequence. A consequence can be either a conditional proposition or an argument; an antecedent can be either an antecedent in a conditional proposition or a premiss set; a consequent can be either a consequent in a conditional proposition or a conclusion of an argument. In general, medieval philosophers frequently do not *in practice* distinguish between conditional propositions and arguments, and any theoretical distinctions they recognize tend not to be significant for my purposes here. (There is one important exception to this generalization which I will discuss in the next essay.)

The "force" of such an imperfect inference is a Topic (253.16); it supplies what is lacking in the perfection of the inference (257.5–6). Following the traditional Boethian account, Abelard assumes the distinction of Topics into Differentiae and maximal propositions, and he discusses the whole variety of Boethian Differentiae. On his view, a Differentia is neither a linguistic entity (as Garlandus sometimes claims[7]) nor a relationship (as Peter of Spain maintains[8]), but a Differentia is invariably an extramental thing. It is a thing referred to by one of the terms in the antecedent of an imperfect conditional, and it has a relationship to a thing referred to by one of the terms in the conditional's consequent (263.7–8, 266.3ff.). The valid inferring of the consequent from the antecedent in an imperfect conditional is dependent on the relationship between these two extramental things. Hence Abelard defines a Differentia as "that thing in whose relation to another thing the firmness of the consecution [of an inference] consists" (263.7–8; cf. 312.32–313.2). For example, in the imperfect inference 'if it is a man, it is an animal,' according to Abelard, it is man which is the Differentia; and the relation of man to animal is the basis of the truth of this imperfect inference (cf. 253.17–21).[9] Man has a particular, recognizable relation to animal, namely, that of species to genus; and this relationship entails that there will be certain logical relationships between categorical propositions whose subjects or predicates refer to these relata.

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[7] Cf. *Garlandus Compotista. Dialectica*, p. 105.10–12.

[8] Cf., e.g., *Peter of Spain. Tractatus*, ed. L. M. de Rijk (Assen: Van Gorcum, 1972), p. 60.10–11 and p. 61.1. Cf. also Eleonore Stump, *Boethius's De topicis differentiis* (Ithaca, N.Y.: Cornell University Press, 1978), pp. 215–236.

[9] It is not clear whether Abelard means that it is the species *man* or the class of men or some individual man which is supposed to be the Differentia.

Spelling out these logical relations and describing the kinds of propositions among which they hold is one of the functions of the maximal propositions. Abelard defines a maximal proposition as a proposition that contains the sense of many conditional propositions and shows the common method of proof for them, which they have on the basis of their Differentiae and the corresponding relationships (263.11–14; cf. 311). In other words, just the fact that man is related to animal as species to genus is not yet enough to verify the imperfect conditional 'if it is a man, it is an animal.' In addition, a generalization is needed describing a legitimate mode of inference between two categorical propositions whose subjects or predicates refer to man and animal. In the case of the imperfect conditional 'If it is a man, it is an animal,' Abelard gives as the maximal proposition: "whatever the species is predicated of, the genus is also predicated of" (263.18). Together the Differentia and this maximal proposition confirm the imperfect conditional (313.9–29) 'If it is a man, it is an animal'; that is, we can construct an argument with the maximal proposition and the Differentia as premisses and the imperfect conditional as the conclusion.

Otto Bird, in his pioneering articles on the Topics, has suggested that we can understand such an Abelardian argument for an imperfect conditional as subsumable under class logic and formalize it accordingly.[10] The Differentia for this conditional and the relationship the Differentia brings with it can be expressed in the premiss

(1) Man is a species of animal.

Bird interprets the relation of the species to genus as one of class inclusion:

(1′) $\alpha \subset \beta$.

The maximal proposition

(2) Whatever the species is predicated of, the genus is also predicated of

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[10] Bird, "Formalizing of the Topics," p. 145.

Bird takes as a law of class logic, namely, that if one class is included in another, anything which is a member of the first class is a member of the second:

(2′) $(\alpha \subset \beta) \rightarrow (x)\,((x \epsilon \alpha) \rightarrow (x \epsilon \beta))$.

The imperfect conditional

(3) if it is a man, it is an animal

is thus understood as an instance of the consequent of (2′), the maximal proposition understood as a law of class logic.[11]

There are several difficulties with Bird's approach as an interpretation of Abelard. In the first place, Abelard takes the relation of species to genus as an invariably necessary one, so that the account of that relation as class inclusion is somewhat inaccurate. Second, it is not clear that all maximal propositions or even just all those Abelard takes as true can be formulated without distortion as laws of class logic. But even if they could, there would be some misrepresentation in doing so. The logical status of maximal propositions on Abelard's view is ambiguous. It is not clear whether they are supposed to be rules of inference, logical laws, or even true generalizations based on metaphysical states of affairs. It seems not unlikely that Abelard did not always distinguish plainly among these three; but, on the whole, maximal propositions in his account seem to fall more often into the third category than into either of the other two. Finally, the suggestion in Bird's approach that Topics constitute a method of *formalizing* nonsyllogistic inferences is more nearly true of Ockham than it is of Abelard; applying it to Abelard blurs the distinction he was still struggling to make. Nonetheless, Bird's basic idea is correct, namely, that an imperfect conditional is *verified* by means of both a proposition stating the relationship of the Differentia and a maximal proposition which is a generalization under which that imperfect conditional can be subsumed.

Abelard's main purpose in his long and elaborate treatise on the Topics is to circumscribe the area within which Topics function, that is, to include all the sorts of inferences dependent on Topics and to exclude some inferences which Topics traditionally were thought to verify but which on Abelard's view they in fact do not verify. So, on the one hand, he painstakingly examines all the traditional varieties of maximal propositions to determine which are necessarily true and which are only probable or readily believable; the latter sort, he maintains, are not really maximal propositions, and he denies that they verify the conditional propositions subsumable under them. On the other hand, he insists that a categorical syllogism or such a syllogism in the form of a conditional proposition does not need a Topic for the validity of its inference (cf. 253.31ff. and 256.25ff.). A first-figure syllogism in *Barbara*, for example, is valid solely in virtue of its form, according to Abelard, and not because of the nature of what is referred to by its terms. A sign of the truth of this claim is the fact that we can change the terms in such a syllogistic conditional without in any way affecting the validity of the inference. That is, instead of 'If every man is an animal and every animal is animate, then every man is animate,' we can make a conditional of this sort: 'If every man is a stone and every stone is wood, then every man is wood'; and we still have a "necessary and indubitable inference" (255.31–36).

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[11] Cf. Bird, "Logical Interest of the Topics"; Bird, "Formalizing of the Topics," p. 145.

Furthermore, propositions that look like logical laws governing the syllogism are not in fact maximal propositions, on Abelard's view. So, for example, he considers the following supposed maximal proposition:

> (S) "If something is predicated universally of something else [All A is B], and something else is predicated universally of [that] predicate [All B is C], then that same thing is predicated universally also of the [original] subject [All A is C]." [261.5ff]

He recognizes (S) as a rule governing syllogistic inference in *Barbara*, but he denies that it is a maximal proposition. His reason for this denial can be expressed briefly by saying that this rule does not have a Differentia, and having a Differentia is, on his view, a necessary condition for being a maximal proposition. There is more to this reason than an uninteresting insistence on preserving a technical part of the traditional Boethian lore about maximal propositions. On Abelard's view, as we have seen, a Differentia is an extramental thing which is referred to in the antecedent of an inference and which has a relationship to some thing referred to in the consequent; and that relationship of two extramental things is what warrants the inference. Abelard insists that rules such as (S) governing syllogistic inferences have no Differentiae because he wants to maintain that such inferences are valid solely in virtue of their form and are *not* dependent on metaphysical relationships between extramental things.

Consider, for example, his argument to show that rule (S) has no Differentia (352.29–353.23). We might be inclined, Abelard says, to think of the middle term [B] as the Differentia of rule (S) because the relationship of [B] to the other terms is what makes the inference valid. But then consider this inference: 'If every man is a stone and every stone is a donkey, then every man is a donkey.' Given Abelard's view of the nature of Differentiae, the claim that the middle term is the Differentia here has to be interpreted as the claim that *stone* is the Differentia in this case and that it is the relationship of stones to men and to donkeys which warrants this syllogism. But that is, of course, plainly an absurd account of the validity of this inference. In similar ways, and for similar reasons, Abelard thinks, all other candidates for the Differentia of (S) can be eliminated; syllogistic inferences are valid in virtue of their form and not in virtue of a relationship holding between the things referred to by terms in the syllogism. Hence rules such as (S) are not maximal propositions, and syllogistic inferences are not dependent on the Topics.

In general, then, Abelard's theory of Topics seems to mark the midpoint in the development of the theory of Topics and formal logic from the work of Garlandus to the work of the terminists. For Garlandus, all of logic is ultimately dependent on Topics and thus to some extent grounded in metaphysics. As I shall show in a later essay, the terminists, on the other hand, take the use of Topics as an abbreviated way of doing what could in any case be done by means of categorical syllogisms. On the one hand, Abelard separates valid categorical syllogisms from Topically dependent inferences, thus denying that syllogistic inferences are rooted in metaphysics, and he argues energetically that categorical syllogisms are valid or invalid solely in virtue of their form. It is plain, furthermore, that he gives preferential status to categorical syllogisms as compared with inferences dependent on the Topics; it is not insignificant that he calls the former *perfect* inferences and the latter *imperfect* inferences. On the other hand, it is Abelard's view that many conditional propositions *are* dependent on the Topics, which validate the inference from the antecedent to the consequent in the conditional. Thus the validity of all nonsyllogistic inferences is for Abelard dependent on the Topics, so that this part of logic—nonsyllogistic inference—is not yet divorced from metaphysics. And it may be that the neglect of conditional propositions and hypothetical syllogisms in the late twelfth and early thirteenth centuries, as well as the marked increase in attention to categorical syllogisms, resulted in part from a growing preference for and interest in what was understood as the formal, nonmetaphysical part of logic.

Against the background of that general account of Abelard's theory of Topics, I will take a closer look at his treatment of some particular Topics, namely, *whole* and *part*, *equals*, *subject* and *predicate*, *antecedent* and *consequent*, *opposites*, and *immediates*. Early twelfth-century treatises that do not discuss all the Boethian Topics concentrate on some or all of the Topics in this group; and it will be easier to locate the historical place of Abelard's work on the Topics in the developments of this period if we are clear about Abelard's treatment of these specific Topics.

Of the seven sets of Topics which interest us here, Abelard groups the first five together as Topics from what is entailed by the substance (339.19ff.); that is (in theory, at any rate), the thing which is the Differentia in this grouping of Topics is not the substance of one of the extramental things referred to in the antecedent of the conditional but rather something consequent on or entailed by the substance of such an extramental thing. Abelard begins his consideration of these Topics by examining the Topic *from the whole*. This he distinguishes in the traditional Boethian way into two sorts: the Topic *from a generic whole* or genus (such as *animal*, which is the genus for *man*) and the Topic *from an integral whole* (such as a house, which is an integral whole for its constituent parts).

Abelard recognizes four maximal propositions for the Topic *from genus* (340.4ff.):

(1) Whatever the genus is removed from, the species is also removed from.
((E1) If this stone is not an animal, it is not a man.)
(2) Whatever is not attributed to the genus is not attributed to the species either.
((E2) If no animal is a stone, no man is a stone.)
(3) Whatever is predicated of the genus with respect to its content is predicated also of the species.
((E3) If every animal is a stone, every man is a stone.)
(4) Whatever the genus taken universally is predicated of, any of its species is also predicated of.
((E4) If something is every animal, then it is a man.)

Of these four maximal propositions, Abelard accepts the negative ones, (1) and (2), as true maximal propositions, and he takes the conditionals they verify as true. The affirmative ones, (3) and (4), however, he rejects as only probable or readily believable but not necessary, and he rejects as false the conditionals which are supposed to be verified by these maximal propositions. He argues for his rejection of (3) and (4) by giving examples of conditionals governed by maximal propositions (3) and (4) and showing circumstances in which these conditionals are false. As a counterexample to (3), for instance, he presents the following conditional (340.28):

(CE3) If every body is a body, every man is a body.

This conditional falls under maximal proposition (3) and has the same form as the original example (E3), 'If every animal is a stone, every man is a stone.' Abelard takes his counterexample (CE3) to be a false conditional because he thinks it is possible for the antecedent to be true and the consequent false. Consider, Abelard says, the state of affairs at the beginning of the creation of the world, when the elements were created but were not yet formed into any particular species of animal. At that time, the antecedent of (CE3) is true ('every body is a body') but the consequent ('every man is a body') is false. His reason for thinking that the consequent is false is apparently based on the conviction that a present-tense universal affirmative proposition is false if no referents of the subject term exist. Abelard espouses both these views in various places in the course of his treatment of the Topics and elsewhere in the *Dialectica*.[12] If we are considering (CE3) with respect to a time on one of the first five days of creation, and if the subject term 'man' can refer only to the men living at that time, then the subject term will not refer at all since at that time men were not yet created. Hence, if propositions with nonreferring subject terms are false, the consequent of (CE3) is false. In summing up his rejection of maximal proposition (3), Abelard says, "Who would say that the species follows necessarily from the genus since the whole generic matter [i.e., the genus] can exist as a whole without any [of its] inferior forms

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[12] Cf. *Dialectica* pp. 176.20–21, 341.21–27, and 341.30–342.4. For an excellent discussion of Abelard's theory of predication and his attempts to deal with nonreferring subject terms, see Norman Kretzmann, "The Culmination of the Old Logic in Peter Abelard: A Twelfth-Century Harvest," in *The Renaissance of the Twelfth Century*, ed. Robert L. Benson and Giles Constable (Cambridge, Mass.: Harvard University Press, and Berkeley and Los Angeles: University of California Press, 1981).

[i.e., its species]?" (341.8–10). His general reason for rejecting maximal proposition (3), then, is that it appears to validate inferences in which the existence of a genus is said to entail the existence of at least one of its species. (The fact that Abelard understands both his example (E3) and his counterexample (CE3) for maximal proposition (3) as cases in which the existence of a genus is supposed to entail the existence of one of its species is further evidence that he takes the truth of a universal proposition to entail the existence of some things referred to by the subject term, so that a universal affirmative proposition with a nonreferring subject term is false.)

His reasons for rejecting maximal proposition (4) are not spelled out; he seems to consider that in his arguments against (3) he has also successfully rebutted (4) (343.13–16).

In the case of the Topic *from an integral whole* (343–346), he also presents four maximal propositions which represent the same four possibilities as in the previous case, namely, the affirmative and negative alternatives with an integral whole in either the subject or the predicate position. These rules can be taken with or without a universal quantifier and with the universal quantifier in either the antecedent or the consequent. That is, we can consider a maximal proposition for this Topic to be

(5) What is attributed to an integral whole is attributed also to any of its parts.
((E5) If a house exists, a wall exists.)

or

(5′) What is *universally* attributed to an integral whole is attributed also to any one of its parts.
((E5′) If a whole house is white, a wall is white.)

or

(5″) What is attributed to an integral whole is attributed also to *all of its parts taken together*.
((E5″) If a house exists, walls and a roof and a foundation exist.)

By 'universally' in case (5′), Abelard means 'attributed to the whole with respect to every one of its parts.' Taken with the universal quantifier in the manner of (5′), Abelard says, maximal propositions for this Topic are true; but they do not seem to have to do with inferences based on the nature of an integral whole and its parts, since the inference depends simply on the fact that what is true of every one of a group of things is true of any one of them. Maximal propositions for this Topic formulated in the manner of (5″) are also true on Abelard's view; but they do not warrant inferences based on the nature of an integral whole any more than do those associated with (5′). Instead, Abelard says, mention of all the parts of an integral whole taken together seems to constitute the definition of that integral whole; and so inferences warranted by maximal propositions such as (5″) seem to be inferences dependent on the nature of a definition and its *definitum*, rather than on the nature of an integral whole.

Inferences warranted by (5), however—the maximal proposition *without* a universal quantifier—are inferences truly based on the nature of an integral whole. But this maximal proposition is false, on Abelard's view, and so are the inferences it warrants. As in the case of the Topic *from a genus*, Abelard rejects the maximal proposition by presenting a counterexample, that is, by showing that a conditional governed by the maximal proposition is false. His counterexample in this case is just the original example:

(E5) If a house exists, a wall exists.

His strategy for showing this conditional false does not consist in showing that it is possible for the antecedent to be true and the consequent false. On the contrary, he says explicitly that it is not possible for a house to exist without the existence of a wall. His objection in this case is that there is no "necessity of consecution" (346.22) because the consequent is not understood in the antecedent. Someone who says that a house exists is thereby also attributing existence to the parts of the house *but* only to all the parts taken together, not to any one of the parts taken singly and separately. It is a subtle objection which is made to appear less significant than it really is by the example Abelard gives for it. His point can be seen more readily if we take as an example something of this sort: if a chair is heavy, one of its legs is heavy. What is attributed to the whole can be attributed to all the parts taken together, but not to an isolated part. In short, Abelard seems to be justifiably concerned to avoid the fallacy of division; and because of that concern he rejects all inferences that really are based on the relationship of an integral whole to one of its parts.

The Topic *from a part* is complementary to the Topic *from a whole*. It, too, is distinguished into two sorts: the Topic *from species* and the Topic *from integral parts*. For each of these Topics, Abelard accepts the contrapositive of the maximal propositions and of the conditionals which he accepted for the Topic *from a genus* and *from an integral whole*, and he rejects the rest.

Abelard distinguishes five different sorts of equality at the beginning of his discussion of the Topic *from an equal* (349–357). These are equality in signification (apparently, when two words have the same signification), in mutual dependence (*comitatio*) (when the essences of two things mutually entail one another, so that neither can be without the other), in quantity, in predication (when two expressions are predicated of all and only the same things), and in inference (when two propositions mutually entail each other, as in the case of a conditional and its contrapositive). It is only the last two cases, equality in predication and equality in inference, which interest Abelard in the treatment of this Topic; and he begins with the Topic *from equals in predication*.

He notes that there is an apparently established distinction between (on the one hand) *natural* equals in predication, which are such that neither of the pair *can* inhere in something without the other, and (on the other hand) *accidental or transitory* equals in predication, which are such that *sometimes* neither of the pair *does* inhere in something without the other. Examples of natural equals in predication are *risible* (capable of laughter) and *man*, on Abelard's view; if anything is a man, it is risible, and vice versa. Examples of accidental equals in predication are *Socrates* and *this seated one*, because they are predicated truly of the same thing only as long as Socrates is sitting. True maximal propositions and conditionals for this Topic will depend on natural, rather than accidental, equals in predication since the connection between two accidental equals of this sort is not necessary and so cannot warrant the truth of a conditional.

Abelard makes some subtle qualifications to the maximal propositions for the Topic *from natural equals in predication*, but he concludes by accepting all four of the possible maximal propositions for this Topic:

(6) Whatever one of a pair of equals is predicated of, the other is also predicated of.
(7) Whatever one of a pair of equals is denied of, the other is also denied of.

(8) Whatever is predicated of one of a pair of equals is predicated also of the other.
(9) Whatever is denied of one of a pair of equals is denied also of the other.

In Abelard's discussion, the Topic *from an equal in inference* has to do only with propositions which are equal in the sense that one is the contrapositive of the other, such as the propositions 'if it is a man, it is an animal' and 'if it is not an animal, it is not a man.' The two maximal propositions for this Topic simply state the logical equivalence of a conditional and its contrapositive, and Abelard accepts them both. The first maximal proposition says that if either the conditional or its contrapositive is true, the other is also true; the second maximal proposition says that if one is false, the other is false also. It is surprising to find Abelard claiming that the logical equivalence of a conditional and its contrapositive is dependent on Topics, given his inclination to divorce formal logic from metaphysics and from Topics.

The Topics *from a subject* and *from a predicate* are not found in Boethius's lists of Topics, and Garlandus does not mention them either. According to Abelard, however, these Topics are common and well-established (cf. 352.14–15). They are supposed to warrant the inferences in such composite conditionals as

(10) If every man is an animal, then if every animal is animate, every man is animate.

and

(11) If every man is an animal, then if every risible thing is a man, every risible thing is an animal.

The inference in (10) is said to depend on the Topic *from a predicate* since the predicate in the antecedent forms the link between antecedent and consequent in the conditional; and for a similar reason, the subject in the antecedent of (11) is supposed to be the basis of the inference, so that (11) is warranted by the Topic *from a subject*. The maximal propositions for these Topics are

(12) If anything [B] is predicated of something [A] universally, then if something else [C] is predicated universally of the predicate

> [B], it [C] is also predicated universally of the [original] subject [A] [352.31–33]

and

> (13) If anything [C] is predicated of something [B] universally, then if something else [A] is subjected universally to the [original] subject [B], it [A] is also subjected universally to the [original] predicate [C]. (cf. 357.18–19)

In other words, (12) consists in the rule that if every A is B, then if every B is C, every A is C also; and so (12) is equivalent to (S) above. (13) is the rule that if every B is C, then if every A is B, every A is C also. These two are logically equivalent to one another, and they amount to laws governing a categorical syllogism in *Barbara*.

Abelard energetically denies that (12) and (13) are really maximal propositions and for reasons similar to those he uses to deny in general that the validity of categorical syllogisms is Topically dependent (352.26ff.). There is no such Differentia as *from a predicate* or *from a subject*, Abelard says, because there is no real thing such that it is correctly describable as a predicate and its relationship to another real thing warrants the inference in a composite conditional such as (10). And since there is no Differentia of such a sort, neither (12) nor (13) can be a maximal proposition, because by definition, on Abelard's view, every maximal proposition must have a Differentia. In short, Abelard denies that the validity of categorical syllogisms, whether or not they are in hypothetical form, is grounded in metaphysics, in a relationship between real things; and he asserts here again that such syllogisms are valid solely in virtue of their form (354.29–355.8). He argues for this view against some subtle objections he himself raises (355.19ff.), but then he goes on, in a way which is at first glance surprising, to reject the truth of all conditionals such as (10) and (11), though he does of course accept the validity of a syllogism in *Barbara*.

Abelard recognizes what he takes to be similarity between (10) and a syllogism in *Barbara* (358.36ff.); but he argues at some length that the two are not logically equivalent and that in fact (10) is false. His reasons for this view seem to me suggestive of his general approach to logic. In his treatment of this Topic (as in his discussion of the Topic *from an integral whole*), Abelard seems to be relying on the notion that an inference is true just in case the meaning or sense of the antecedent compels or contains (somehow) within itself the meaning of the consequent.[13] For (10) to be true, then, it would have to be the case that the sense of the antecedent

(a) every man is an animal

contains within itself the sense of the consequent, which is

(b) if every animal is animate, every man is animate.

Given Abelard's views about conditional inferences, however, the sense of the consequent consists in the fact that the meaning of

(c) every animal is animate

contains within itself the meaning of

(d) every man is animate.

In general, Abelard seems to want to deny both that (d) is inferable (in his sense of 'infer') from (c) and that (b) is inferable from (a).

The justification for this position is more easily seen if we take an example composed of false propositions. Consider this example of a syllogism in *Barbara*: 'every man is a stone and every stone is a donkey; therefore, every man is a donkey.' If we cast this example into the same form as (10), we have

(14) If every man is a stone, then if every stone is a donkey, every man is a donkey.

For (14) to be true, given Abelard's views of inference, the sense of the proposition

(a′) every man is a stone

would have to compel or contain within itself the sense of the consequent

(b′) if every stone is a donkey, every man is a donkey.

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[13] Cf., e.g., *Dialectica* pp. 253.28–29, 283.37–284.13, and esp. 346.19–24.

The sense of (b′), on Abelard's view, consists in the fact that the sense of

(c′) every stone is a donkey

compels or contains within itself the sense of

(d′) every man is a donkey.

But (c′) clearly does not contain the sense of (d′); and, furthermore, the false claim that it does, which is the sense of the consequent (b′), is in no way contained in the antecedent (a′).

The law of exportation, then, which warrants the logical equivalence between (14) and the corresponding syllogism in *Barbara*, does not hold here on Abelard's view because of his understanding of the truth-conditions for a conditional inference. This, however, is an understanding of conditional inferences which diminishes the *formal* nature of logic, because the truth of conditional inferences depends at least in part on certain relations between the meanings of the antecedent and the consequent. It is surprising to find Abelard insisting so strongly on this view of conditional inferences, given his emphasis on the purely formal character of valid categorical syllogisms. That he does take such a position suggests that he is moving away from the conception of logic as part of metaphysics (which seems to be Garlandus's conception) and toward an understanding of logic as formal by means of an intermediate step in which logical considerations are assimilated to considerations of meaning.

For the Topics *from the antecedent* and *from the consequent* (364–369), Abelard gives the following four maximal propositions:

(15) If the antecedent [of a conditional] is posited, the consequent is also posited.
(16) Whatever entails the antecedent [of a conditional] also entails the consequent.
(17) If the consequent [of a conditional] is destroyed, the antecedent is destroyed also.
(18) Whatever follows from the consequent [of a conditional] follows also from the antecedent.

Abelard gives these maximal propositions fairly short shrift. If they are taken in such a way that they are true maximal propositions, they are assimilable, on his view, to the maximal propositions for other Topics. Thus he takes (17) as a law governing contraposition and assimilates it to the maximal proposition for the Topic *from equals in inference*. If they are not taken as equivalent to true maximal propositions for one of the other Topics, they are to be rejected as not really maximal propositions in the same way and for the same reasons as the maximal propositions for the Topics *from a predicate* and *from a subject* were rejected.

Opposites Abelard distinguishes into complex opposites (opposites which are propositions) and noncomplex opposites (opposites which are things or attributes); and the latter sort he distinguishes in turn into those which are *things with opposite essences*, such as a man, which is a rational animal, and a horse, which is an irrational animal, and those which are *opposite attributes*, such as being white and being black (393–397). He recognizes one major maximal proposition for each sort of noncomplex opposite:

(19) If one [of a pair] of opposites is predicated of something, the other [member of the pair] of opposites is denied of that same thing.
(20) If one [of a pair] of opposites is attributed to something as an attribute, the other [of the pair] of opposites is not attributed to that same thing.

The first of these two, (19), is the maximal proposition for noncomplex essential opposites; the second, (20), for noncomplex attributive opposites.

By complex opposites, Abelard understands both propositions which are just incompatible—for example, 'Socrates is the only son of Sophronicus' and 'Plato is a son of Sophronicus,' or 'Socrates is a man' and 'Socrates is a horse'—and propositions which are explicitly contradictory, such as 'Socrates is sitting' and 'Socrates is not sitting.' The maximal proposition which he gives for complex opposites, however, seems formulated only for complex opposites which are explicitly contradictory:

(21) If the affirmation is true, the negation is false; or if the negation is true, the affirmation is false.

This maximal proposition is equivalent to the law of noncontradiction.

Abelard denies that any of the maximal propositions for opposites are true maximal propositions, for reasons that are not entirely clear

(395.7–9; cf. 259–260). His technique for arguing against these alleged maximal propositions consists in showing that conditionals warranted by them are false because absurd conditionals can be deduced from them. For example, from the conditional 'If Socrates is a man, he is not a horse,' which is supposed to be warranted by the maximal proposition for noncomplex essential opposites, (17), Abelard says we can deduce the plainly false conditional 'If it is both a man and an animal, it is not both a man and an animal' (395.9–12). He is apparently reasoning in this way. From the fact that if something is a man it is not a horse, it follows by contraposition that if something is a horse, it is not a man. Hence, if something is both a man and a horse, it is (in virtue of being a man) not a horse and (in virtue of being a horse) not a man, so that if something is both, it is neither. Even on Abelard's own view, however, the antecedent of this supposedly absurd conditional contains an implicit contradiction since it implies that something is both rational and irrational. The antecedent, then, is not only false but, on Abelard's own account, impossible, so that the conditional as a whole is true (if we accept the rule that from the impossible anything follows). Why Abelard thinks the conditional is false but deducible from the conditional 'If it is a man, it is not an animal,' and why he chooses this strategy to reject the maximal propositions for opposites, is not clear.

By 'immediates' Abelard apparently understands a particular kind of opposites, namely, contraries that lack an intermediate, either in general, or within some genus, such as 'rational' and 'irrational' within the genus *animal* (because everything which is an animal is either rational or irrational) (397–406). The maximal proposition for this Topic is

(22) If one [of a pair of immediates] is taken away, the other [of that pair] is posited. [400.20]

This maximal proposition is supposed to warrant conditional inferences such as 'If it is not healthy, it is sick.' Abelard rejects both the maximal proposition and the inferences it is said to govern, but he accepts both with the addition of a qualification specifying a genus for the immediates. So, for example, he accepts the conditional 'If it is not healthy, it is sick, when it is an animal' (401.2–4). What is most interesting in Abelard's discussion of the Topic *from immediates*, however, is what he says in conclusion (405.32–406.7). There he claims that some of the conditional inferences which he had previously rejected are acceptable if the relationship of the terms is explicitly expressed in the conditional. Thus although he rejects the inference

(23) If Socrates is a man, Socrates is not a stone, he accepts the inference
(24) If Socrates is a man, and man and stone are opposites, then Socrates is not a stone.

Alternatively, he says, such an inference can be cast into syllogistic form; in that way it will be a valid inference and, moreover, one which is valid solely in virtue of its form and not in virtue of a relationship between things referred to in the inference. So, for example, we can recast (24) as

(25) If Socrates is a man and no man is a stone, then Socrates is not a stone.

This suggestion that at least some Topical inferences can be recast into syllogistic form, together with Abelard's general attitude toward categorical syllogisms, is a signpost pointing toward the terminists. If a valid categorical syllogism is a *perfect* inference and a Topical inference an *imperfect* one, and if Topical inferences can be recast as valid categorical syllogisms, then the way is open for an attempt in theory and in practice to subsume all Topical inferences under the categorical syllogisms. Such an attempt is exactly what we find in the terminists, who concentrate on categorical syllogisms to the almost complete neglect of conditional inferences and hypothetical syllogisms and who explain Topical inferences as enthymemes, which are reducible to categorical syllogisms by supplying a missing premiss.

Whether Abelard was influential on the terminists or their immediate precursors is not clear (I will say something more about his influence in the next essay). But the sort of theories about and attitudes toward logic found in Abelard's work are plainly representative of the change in scholastic theories of Topics in particular and of logic in general which must have occurred between Garlandus in the eleventh century and the terminists in the early thirteenth.

6

Logic in the Early Twelfth Century

Twelfth-Century Logic Books

There is a marked divergence between the treatment of Topics in Garlandus Compotista's *Dialectica* and the treatment provided by the major terminist logicians in the first half of the thirteenth century. Garlandus in the eleventh century and the terminists in the thirteenth mark the poles between which lies the abundant twelfth-century work on the Topics. At least thirteen twelfth-century commentaries on Boethius's *De topicis differentiis* have survived,[1] including one by Abelard.[2] And fourteen of the (mostly twelfth-century) treatises edited or excerpted by de Rijk in *Logica Modernorum* discuss Topics: two logic treatises apparently from the school of William of Champeaux,[3] an anonymous commentary on Porphyry,[4] *Introductiones dialectice Berolinenses,*[5] *Ars Meliduna,*[6] *Summe Metenses,*[7] *Introductiones Montane minores, Abbreviatio Montana, Excerpta Norimbergensia, Tractatus Anagnini, Introductiones Parisienses, Logica "Ut dicit," Logica "Cum sit nostra,"* and *Dialectica Monacensis.*[8] The treatises presented by de Rijk tend to fall into two groups, each of which has its own pattern of contents and particular handling of the Topics.

This essay was originally published in *Meaning and Inference in Medieval Philosophy: Studies in Memory of Jan Pinborg,* ed. Norman Kretzmann (Dordrecht: Kluwer, 1988), pp. 31–55.

[1] See N. J. Green-Pedersen, "The Doctrine of 'maxima propositio' and 'locus differentia' in Commentaries from the 12th Century on Boethius' 'Topics,'" *Studia Mediewistyczne,* 18 (1977), 125–163.

[2] Peter Abelard, *Super Topica glossae,* ed. Mario dal Pra, in *Pietro Abelardo: Scritti di logica* (Florence: La nuova Italia Editrice, 1969).

[3] Ed. L. M. de Rijk, *Logica Modernorum* (Assen: Van Gorcum, 1962–67), vol. II, pt. 1, pp. 130–146.

[4] Ibid., vol. II, pt. 1, pp. 164–165.

[5] Ibid., vol. II, pt. 1, pp. 151–155.

[6] Ibid., vol. II, pt. 1, pp. 264–291, 319–356.

[7] Ibid., vol. II, pt. 1, pp. 449–490.

[8] The last eight of these treatises are edited in de Rijk, *Logica Modernorum,* vol. II, pt. 2.

Treatises More Like Garlandus's *Dialectica*

Introductiones Montane minores and *Abbreviatio Montana* belong to one group, which is represented also, for example, by the *Ars Emmerana* and the *Ars Burana* (although the latter two take up dialectical questions rather than the Topics themselves). Roughly speaking, all four of these treatises show the following pattern in the table of contents: On sound (*de sono*), on spoken sound (*de voce*), on linguistic expression (*de oratione*), on the proposition, on the categorical proposition (including a section on conversion), on the hypothetical proposition, on Topics, and on hypothetical and categorical syllogisms (usually in that order). (*Introductiones Montane minores* lacks the section on categorical syllogisms and *Ars Burana* the section on hypothetical syllogisms; *Ars Emmerana* concludes with a section on the properties of terms). The *Tractatus Anagnini* seem idiosyncratic; but the treatment of Topics found there places them in this group, and the order of materials in the second tractate shows some resemblance to the order of the contents of the treatises of this group: conversion, Topics, categorical syllogisms, and hypothetical syllogisms. The order of subjects in Garlandus's *Dialectica* also resembles this pattern. After a first Book on the predicables and categories, Garlandus's work is arranged, roughly, in this way: on linguistic expression, on the proposition, on the categorical proposition (including a section on conversion), on single and composite propositions, on Topics, on categorical syllogisms, and on hypothetical syllogisms.

The treatment of Topics in those treatises of this group that are complete and that discuss Topics at some length—*Introductiones Montane minores*, *Abbreviatio Montana*, and *Tractatus Anagnini*—is more like the treatment of the Topics in Garlandus's work than like that in the work of a terminist such as Peter of Spain. All three of these treatises devote considerable attention to conditional propositions or hypothetical syllogisms or both; and in *Introductiones Montane minores* and *Abbreviatio Montana* the treatment of Topics is included in the sections on conditional propositions. All three concentrate heavily on the three Topics Garlandus associated with categorical syllogisms—namely, *from a whole*, *from a part*, and *from an equal*—but the Topics *from opposites* and *from similars* also receive considerable attention. Finally, like Garlandus's *Dialectica*, all three have detailed discussions of conversion, which they connect with the Topics.[9] The logic books associated with

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[9] Cf. *Garlandus Compotista, Dialectica*, ed. L. M. de Rijk (Assen: Van Gorcum, 1959), p. 118.35ff. For a more detailed exposition of Garlandus's views, see the essay on Garlandus above.

William of Champeaux, the anonymous commentary on Porphyry, *Introductiones dialectice Berolinenses, Excerpta Norimbergensia,* and *Ars Meliduna* are like these treatises as regards the Topics they emphasize, and all of them discuss Topics as part of their consideration of conditional propositions.[10] All these treatises date from the first three-quarters of the twelfth century, except the *Tractatus Anagnini,* which apparently stems from the end of the century.[11]

Treatises More Like Terminist Treatises

Significantly different from these are the treatises *Introductiones Parisienses, Logica "Ut dicit," Logica "Cum sit nostra"*, and *Dialectica Monacensis.* These, too, tend to show a rough pattern in the order of their contents: introduction, proposition, syllogisms, Topics, and properties of terms (supposition and sometimes others as well). All but *Introductiones Parisienses* have a section on categories or predicables or both, variously placed; and *Dialectica Monacensis* includes a section on sophistical arguments between the chapters on Topics and properties of terms. These treatises tend to have little or nothing on hypothetical propositions and syllogisms; with the exception of *Dialectica Monacensis,* they also have little or nothing on conversion. They all have lengthy discussions of categorical syllogisms, however. Furthermore, all of them discuss the entire list of Boethian (Themistian) Differentiae;[12] and all tend to present the Topics in the same way: each Topic is associated with one Differentia, for which generally more than one maximal proposition is given, each with its own example. In all these respects, and others as well,[13] these treatises are like terminist treatises, such as Peter of Spain's *Tractatus,* and unlike Garlandus's *Dialectica.* All the treatises in this group are probably to be dated around the turn of the century.[14]

The Historical Problem

It seems clear, then, that a radical change took place in the treatment of logic in general and of the Topics in particular in the twelfth century. It is, of course, customary to explain a large variety of changes in scholastic philosophy in this period by pointing to the rediscovery of Aristotle. But, in the first place, simply indicating the acquisition of the works of Aristotle is too vague an explanation for the specific changes in logic I have called attention to here. And, second, the rediscovery of Aristotle, all by itself, plainly cannot account for any changes in philosophy. The rediscovered works must be read by someone, interpreted, and finally brought into some relationship with current philosophical views. We need to know more about these processes if we are to understand the philosophical shifts in this period. In this essay I will shed some light on the process resulting in at least one significant change in twelfth-century logic by looking closely at the treatment of Topics in the first group of treatises I described above; on the basis of my investigation of that material, I will make some suggestions about Abelard's influence on and originality in the developments of logic in the twelfth century.

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[10] De Rijk, *Logica Modernorum,* vol. II, pt. 2, pp. 116ff. and vol. II, pt. 1, pp. 272–273 and 347ff.

[11] For the dating of this treatise, see H. A. G. Braakhuis, *De 13de eeuwse Tractaten over syncategorematische Termen* (Leiden: Krips Repro Meppel, 1979), vol. I, pp. 407–408, n. 89.

[12] And in this respect *Summe Metenses* (now believed to be by Nicholas of Paris, ca. 1250; see Braakhuis, *De 13de eeuwse Tractaten,* vol. I, pp. 317–326) apparently resembles them; see de Rijk, *Logica Modernorum,* vol. II, pt. 1, pp. 472–473.

[13] To take just one example, *Introductiones Parisienses* and *Dialectica Monacensis* define a Differentia as Peter of Spain does, as a relationship of a certain sort.

[14] De Rijk, *Logica Modernorum,* vol. II, pt. 1, pp. 410–414.

Introductiones dialectice Berolinenses

For discussion of the Topics, the most primitive twelfth-century treatise is *Introductiones dialectice Berolinenses* (*IdB*). De Rijk dates this treatise in the early twelfth century. He suggests that it originated in the school of Mont Ste-Geneviève because of its emphasis on the inference of conditional propositions, which was a favorite subject of that school,[15] although the logic books from the school of William of Champeaux share that emphasis. The treatise *IdB* assumes that the sole function of Topics is to warrant inferences, either syllogistic inferences or inferences from antecedent to consequent in a conditional proposition, although it gives no indication of what it takes to be the criteria for a valid inference. Only five Topics are discussed in this treatise: *from a whole, from a part, from an equal, from opposites,* and *from immediates.* The discussion of these Topics, furthermore, does not proceed by considering each Differentia in turn with its corresponding maximal propositions. Instead the organization for this section of the treatise stems from its initial consideration of a simple conditional, that is, a conditional in which the antecedent and the consequent are both categorical. In such a conditional, *IdB* maintains, the (categorical) antecedent proves the (categorical) consequent on the basis of the subject or the predicate or both. For example, in the conditional 'If Socrates is a man, Socrates is an animal,' the inference from antecedent to consequent is warranted on the basis of the particular *predicates* in the antecedent and consequent, which have a certain relationship to each other on which the inference depends. In other inferences, either the subject terms or both the predicate and the subject terms are crucial. These three cases are taken up sequentially in *IdB*, and the Topics are discussed under those headings.

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[15] Ibid., vol. II, pt. 1, p. 160.

When the inference in the conditional is based on the predicate, according to this treatise, all five Differentiae come into play, and there is one maximal proposition for each Differentia. The treatise, however, does not use the expression 'maximal proposition' but refers to these simply as rules. For inferences warranted on the basis of the predicate, the treatise presents and accepts five "rules":

(1) Whatever the whole is predicated of, the parts are also predicated disjunctively of.
    (E1) If Socrates is an animal, Socrates is either rational or irrational.
(2) Whatever the part is predicated of, the whole is also predicated of.
    (E2) If Socrates is a man, Socrates is an animal.
(3) Whatever one equal is predicated of, the other equal is also predicated of.
    (E3) If Socrates is a man, Socrates is risible.
(4) Whatever one opposite is predicated of, the other opposite is denied of.
    (E4) If Socrates is a man, Socrates is not a stone.
(5) Whatever one immediate is predicated of, the other immediate is denied of.
    (E5) If Socrates is healthy, Socrates is not sick.[16]

For inferences warranted on the basis of the subject, the treatise accepts only three Topics—*whole*, *part*, and *equal*—and three rules:

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[16] Ibid., vol. II, pt. 1, pp. 153–154:
(1) *"de quocumque totum, et partes eius sub divisione predicantur. Verbi gratia: 'si Socrates est animal, Socrates est rationalis vel irrationalis.'"*
(2) *"de quocumque pars, et totum. Verbo [sic!] gratia: 'si Socrates est homo, Socrates est animal.'"*
(3) *"de quocumque predicatur unum par, et reliquum. Verbi gratia: 'si Socrates est homo, Socrates est risibilis.'"*
(4) *"de quocumque predicatur unum oppositum, ⟨oppositum⟩ illius oppositi removetur ab eodem. Verbi gratia: 'si Socrates est homo, Socrates non est lapis.'"*
(5) *"de quocumque predicatur unum immediatum, immediatum illius immediati removetur ab eodem. Verbi gratia: 'si Socrates est sanus, Socrates non est eger.'"*

(6) Whatever is predicated of a whole is predicated also of a part.
(E6) If every man is an animal, Socrates is an animal.
(7) Whatever is predicated universally of a part is predicated particularly of a whole.
(E7) If every man is a body, some animal is a body.
(8) Whatever is predicated of one equal is predicated also of the other.
(E8) If every man is an animal, every risible thing is an animal.[17]

When the inference is based on both the subject and the predicate, the treatise accepts two rules:

(9) If something [A] is predicated universally of something [B], then if something else [C] is predicated universally of the [original] predicate [A], that same thing [C] is predicated universally of the [original] subject [B].
(E9) If every man is an animal, then if every animal is a body, every man is a body.
(10) If something [A] is predicated universally of something [B], then if something else [C] is predicated universally of the [original] subject [B], that same thing [C] is predicated particularly of the [original] predicate [A].
(E10) If every man is an animal, then if every man is a body, some animal is a body.[18]

The choice of these two rules, which validate syllogistic inferences in *Barbara* and *Darapti* respectively, is odd. It is hard to understand why just two sorts of syllogistic inferences should be selected; and the

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17. Ibid., vol. II, pt. 1, p. 154:
(6) *"quicquid predicatur de toto, et de parte. Ut 'si omnis homo est animal, Socrates est animal.'"*
(7) *"quicquid predicatur de parte universaliter et de toto particulariter. Verbi gratia: 'si omnis homo ⟨est⟩ corpus, quoddam animal est corpus.'"*
(8) *"quicquid predicatur de pari, et de reliquo. Ut 'si omnis homo est animal, omne risibile est animal.'"*

18. Ibid.:
(9) *"si aliquid predicatur de aliquo universaliter, tunc si aliquid predicatur de predicato universaliter, illud idem predicatur de subiecto universaliter. Verbi gratia: 'si omnis homo est animal, tunc si omne animal est corpus omnis homo est corpus.'"*
(10) *"si aliquid predicatur de aliquo universaliter, tunc si aliquid predicatur de subiecto universaliter, illud idem predicatur de predicato particulariter. Verbi gratia: 'si omnis homo est animal, tunc si omnis homo est corpus quoddam animal est corpus.'"*

reasons for picking these particular two, *Barbara* and *Darapti* (rather than the fundamental moods *Barbara* and *Celarent*, say), are obscure. The presentation of these rules and their examples concludes the treatise's examination of Topics.

Introductiones dialectice secundum Wilgelmum

Of the two treatises associated with the school of William of Champeaux,[19] the second, according to de Rijk, is a *reportatio* of a school disputation. It contains only a fragment of a discussion of Topics, which is hard to evaluate because both the beginning and the end of the discussion are missing. The first treatise, however, which de Rijk calls *Introductiones dialectice secundum Wilgelmum* (*IdW*), contains a full consideration of Topics. De Rijk argues[20] that this treatise is a compilation from a logic treatise actually written by William of Champeaux,[21] and he assigns it to the period before 1113, when William was still at Paris. It is in many respects very similar to *Introductiones dialectice Berolinenses* (*IdB*), but it is more sophisticated philosophically.

The general plan of organization for the treatment of Topics in *IdW* is the same as that in *IdB* but with an additional complication. *IdW* divides its discussion of Topics into four groups, depending on whether the inference in question is warranted on the basis of (i) the predicate, (ii) the subject, (iii) both the subject and the predicate, or—and this is the innovation—(iv) "the force of the whole" (*ex vi totius*).[22]

In considering a simple conditional proposition, in which both antecedent and consequent are categorical propositions, *IdW* recognizes no more Differentiae than does *IdB*, but it does add maximal propositions. For inferences warranted on the basis of the predicate, *IdW* gives not five but eight rules. There are two rules each for the Topics *from a whole, from a part,* and *from an equal*:

(11a) Whatever the whole is universally predicated of, all its parts are also disjunctively predicated of.
(11b) Whatever any whole is universally denied of, all its parts are also denied of.
(12a) Whatever a part is predicated of, the whole is also predicated of.

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19. See ibid., vol. II, pt. 1, pp. 134ff.
20. See ibid., vol. II, pt. 1, pp. 145ff.
21. Cf. ibid., vol. II, pt. 1, p. 139.
22. Ibid., vol. II, pt. 1, p. 134.

(12b) Whatever all the parts are denied of, their whole is also denied of.
(13a) Whatever one equal is predicated of, the other equal is also predicated of.
(13b) Whatever one equal is denied of, the other equal is also denied of.[23]

The rules for the Topics *from opposites* and *from immediates* are basically the same as those in *IdB*.

For inferences warranted on the basis of the subject, *IdW* accepts the same three Differentiae as *IdB* but gives six rules rather than three. There are two rules for the Topic *from an equal,* which are analogous to (13a) and (13b) above, only with the equals in question as the subjects instead of as the predicates. Four rules for the Topics *from a whole* and *from a part* are given:

(14a) Whatever is universally predicated of a whole is predicated also of any of its parts universally, particularly, indefinitely, or singularly.
(14b) Whatever is universally denied of a whole is denied also of any one of its parts universally, particularly, indefinitely, or singularly.
(15a) Whatever is predicated universally of a part is also predicated particularly of a whole.
(15b) Whatever is denied universally or particularly of a part is denied particularly of its whole.[24]

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[23] Ibid., vol. II, pt. 1, p. 135:
(11a) *"de quocumque predicatur totum universaliter, de illo predicantur omnes partes illius sub disiunctione."*
(11b) *"de quocumque removetur aliquod totum universaliter, de illo removentur omnes partes illius."*
(12a) *"de quocumque predicatur pars, et totum."*
(12b) *"de quocumque removentur omnes partes, etiam totum illarum."*
(13a) *"de quocumque predicatur unum par, et reliqua."*
(13b) *"a quocumque removetur unum par, et reliqua."*

[24] Ibid., vol. II, pt. 1, pp. 135–136:
(14a) *"quicquid predicatur de toto universaliter, et de qualibet parte illius vel universaliter vel particulariter vel in⟨de⟩finite vel singulariter."*
(14b) *"quicquid removetur a toto universaliter, illud idem removetur a qualibet parte illius universaliter, particulariter, in⟨de⟩finite, singulariter."*
(15a) *"quicquid predicatur de parte universaliter, et de toto particulariter."*
(15b) *"quicquid removetur a parte universaliter vel particulariter, a toto particulariter."*

All these rules are very similar to those in *IdB*. They differ primarily by taking into account the increased complexity and variety resulting from consideration of the quantity (universal, particular, indefinite, or singular) and the quality (affirmative or negative) of the propositions in the conditional inference.

The two treatises diverge considerably, however, in their treatment of inferences warranted on the basis of both the subject and the predicate. Instead of the two rules for syllogistic inferences in *Barbara* and *Darapti* which *IdB* gives, *IdW* has two rules that depend on a double Topic. The first rule corresponds to the double Topic *from a whole and an equal*:

(16a) If some equal is predicated of some whole, then the other equal is predicated of a part of that whole.[25]

The sort of inference *IdW* has in mind as warranted by this rule must be very specialized, roughly as follows:

(E16a) If every animal is corporeal, then every man is a material object.

Here *corporeal* and *material object* are the two equals, and *animal* is the whole of which *man* is a part; in (E16a) one equal (*corporeal*) is predicated of a whole (*animal*) in the antecedent, while the other equal (*material object*) is predicated of a part of the whole (*man*) in the consequent. The claim in (16a), then, is roughly equivalent to a theorem of class logic, namely,

(16a′) $$(H \subset A \wedge (x)[(x \in A \rightarrow Fx) \wedge (Fx \leftrightarrow Gx)]) \rightarrow (x)(x \in H \rightarrow Gx)$$

(where 'H' and 'A' stand for the class of human beings and the class of animals, respectively, 'F' stands for the property of being corporeal, and 'G' for the property of being a material object).

The second rule for this group is similar to the preceding one and corresponds to the double Topic *from a whole and a part*:

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25. Ibid., vol. II, pt. 1, p. 136: "*si aliquod par predicatur de aliquo toto, par illius predicatur de parte illius.*"

(16b) If some part is predicated of some whole, the whole of that part is predicated of a part of the whole which is the original subject.[26]

And it is apparently supposed to warrant inferences of this sort:

(E16b) If every animal is animate, then every man is corporeal.

Here *animal* is the whole for *man* and *corporeal* is the whole for *animate* (since on the Porphyrian tree the genus of corporeal things is divided into the two species of animate corporeal things and inanimate corporeal things). And (16b) seems to correspond roughly to this theorem:

(16b′) $$[H \subset A \wedge L \subset C \wedge (x)\,(x \in A \rightarrow x \in L)] \rightarrow (x)\,(x \in H \rightarrow x \in C)$$

(where 'H' and 'A' stand for the same classes as above, 'L' for the class of animate things, and 'C' for the class of corporeal things).

The rest of the section on Topics in *IdW* contains material that has no counterpart in *IdB*. The discussion of inferences based "on the force of the whole" includes the rules for subalterns, warranting the inference from an A proposition to the corresponding I proposition (if every man is an animal, then some men are animals), and for conversion *per accidens* (if every man is an animal, then some animals are men). There is also a long list of rules for composite conditionals in which the antecedent or the consequent or both are themselves conditional propositions.[27] These include the following:

(17) Whatever implies the antecedent of a conditional also implies the consequent.
(18) Whatever is implied by the consequent of a conditional is also implied by the antecedent.
(19) If the consequent of a conditional is denied, the antecedent is also denied.[28]

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[26] Ibid.: *"si aliqua pars predicatur de aliquo toto, totum illius partis predicatur de parte subiecti totius."*

[27] Ibid., vol. II, pt. 1, pp. 136–139.

[28] Ibid., vol. II, pt. 1:
(17) *"quicquid infert antecedens, infert consequens"* (p. 136).
(18) *"quicquid sequitur ad consequens, sequitur ad antecedens"* (p. 137).
(19) *"si aliquid infert aliud, destructo consequenti destruitur antecedens"* (p. 137).

(17) and (18) apparently correspond to these logical laws:

(17′) $[(p \rightarrow q) \wedge (r \rightarrow p)] \rightarrow (r \rightarrow q)$
(18′) $[(p \rightarrow q) \wedge (q \rightarrow r)] \rightarrow (p \rightarrow r)$;

and (19) is the rule for *modus tollens*.

This section also contains a number of what seem to be substitution rules, of which (20) is typical:

> (20) If a categorical proposition implies a conditional proposition, then if something implies that categorical and something else implies the antecedent of the conditional, these latter two can be put in the place of those in the consequence.[29]

It is apparently supposed to warrant inferences of this sort:

> (E20) If it is the case that if something is corporeal then if it is rational it is risible, then if it is the case that if something is animate it is corporeal and if something is a man it is rational then if something is animate then if it is a man it is risible.

Or somewhat more perspicuously:

(20′) $[p \rightarrow (q \rightarrow r)] \rightarrow \{ [(s \rightarrow p) \wedge (t \rightarrow q)] \, [s \rightarrow (t \rightarrow r)]\}$

The treatise ends with a presentation of rules for syllogistic inferences in *Barbara, Cesare, Celarent, Darii*, and *Darapti*, in that order.[30] As in the case of *IdB*, there seems to be no good reason why the author of the treatise picks just these syllogisms and no others to give rules for, and the order is peculiar, too, since it mixes up figures of the syllogism for no apparent reason.

Excerpta Norimbergensia

The section on Topics in *Excerpta Norimbergensia* is incomplete,[31] but what remains is almost exactly the same as *IdW*'s section. There is the same fourfold division of Topics according to predicate, subject, both predicate and subject, and the force of the whole. There follows a discussion of inferences warranted on the basis of the predicate, for which *Excerpta Norimbergensia,* like *IdW,* accepts five Differentiae and eight rules. The eight rules are presented in the same order as in *IdW,* and they are also very similar in wording to those in *IdW.* After the presentation of these rules, this part of the treatise breaks off, so that the discussion of inferences warranted on the basis of the predicate is all we have of the treatment of Topics in *Excerpta Norimbergensia.* De Rijk dates this treatise from before the middle of the twelfth century and suggests that, like *IdB,* it may have originated in the school of Mont Ste. Geneviève.[32]

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[29] Ibid., vol. II, pt. 1, p. 137: "*si aliqua cathegorica infert aliquam hypotheticam, tunc si aliquid infert ipsam cathegoricam et aliud infert antecedens illius hypothetice, illa duo ponuntur in loco illorum in consequentia.*"

[30] Ibid., vol. II, pt. 1, pp. 138–139.

[31] Ibid., vol. II, pt. 2, pp. 117–118.

These Three Treatises in Relation to Abelard's Work on Topics

IdB, IdW, and *Excerpta Norimbergensia,* then, resemble one another very closely in their treatments of Topics, and they differ in significant ways both from Garlandus and from Abelard. It is worth asking what accounts for the radical changes in the understanding of logic in general and of Topics in particular between Garlandus and William of Champeaux, if *IdW* is indeed by William. If we could answer that question, we would know a great deal more about early twelfth-century logic. And the differences between Abelard and these three treatises are both philosophically and historically significant. To begin with, Abelard's work on Topics is much closer to Boethius's in content and organization than it is to the treatises of this group. Unlike Abelard, the author of *IdW* and the other anonymous logicians in this group accept and discuss only five of the entire Boethian list of Differentiae in connection with a simple conditional proposition. Furthermore, unlike Abelard, their treatment of Topics is organized by a successive consideration not of various Differentiae but rather of the grammatical unit considered to be crucial for the inference, namely, predicate, subject, both, or the whole proposition. The terminology of the treatises also diverges from Boethius: they do not refer to maximal propositions but simply to rules, and they do not use the term 'Differentia' in this connection. Philosophically considered, these treatises are primitive compared to Abelard's. They do not distinguish different kinds of opposites or different kinds of equals, and they take *whole* and *part* as equivalent to *genus* and *species,* without taking any notice of integral wholes and parts (in this, of course, they are also

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32. Ibid., vol. II, pt. 1, pp. 155–160.

regressing from Boethius's work). More important, they assume that syllogistic inferences are on a par with other Topical inferences, listing rules for syllogistic inferences alongside other maximal propositions, without showing any sign of taking sides in a controversy by doing so. And they seem oblivious to Abelard's sort of worry over the distinction between necessary and probable Topics, accepting without argument many of the inferences Abelard rejects.[33]

Abbreviatio Montana

Abbreviatio Montana (*AM*), which de Rijk dates before 1140 and which he suggests comes from the school of Alberic at Mont Ste. Geneviève,[34] shows signs of moving beyond this elementary level. The treatise begins its treatment of Topics with a slightly more complicated version of the same divisions as are found in *IdW* and the others: the force of the inference in a simple conditional is based on the predicate of the antecedent, the subject of the antecedent, on both, or on the proposition as a whole.[35] But it soon becomes apparent that *AM* covers the Topics by considering each Differentia in turn. For example, it discusses inferences based on the predicate when the Differentia in question is *from a whole,* then those based on the subject, when the Differentia is also *from a whole;* then it goes on to consider the Differentia *from a part* in the same way, by examining in order inferences based on the subject or the predicate. In this manner, it covers the same five Topics as *IdW* and the others.[36]

In a number of respects, its discussion of these Topics is much more complicated than that of the treatises in the previous group. For example, when the inference is warranted on the basis of the predicate, *AM* specifies explicitly that it is the predicate *in the antecedent* of the conditional on which the inference is based. Thus it considers two kinds of cases in connection with the predicate, namely, when the inference is warranted by the relationship of the predicate in the antecedent to the *predicate* in the consequent and when it is warranted by the relationship of the predicate in the antecedent to the *subject* in the consequent.[37] Furthermore, *AM* distinguishes *whole* and *part* into *genus* and *species* on the one hand, and *integral whole* and *integral part* on the other, so that it discusses two different kinds of Topics *from the whole* and *from the part* and two different sorts of corresponding inferences.[38] In connection with the Topic *from an equal*, *AM* distinguishes four kinds of equals: equals in predication, inference, mutual entailment, and quantity, differing from Abelard only in lacking equals in signification. (The examples *AM* uses for equals in predication and equals in mutual entailment are the same as Abelard's.[39]) Finally, like Abelard, the author of *AM* also distinguishes four sorts of opposites and considers different sorts of inferences corresponding to these different sorts of opposites.[40] In discussing inferences warranted on the basis of both the subject and the predicate, *AM* shows more imagination than the treatises of the earlier group. It briefly examines a variety of combinations of Topics and concludes by saying that it is, of course, possible to combine Topics in any number of ways.[41] In connection with inferences warranted on the basis of "the whole proposition," *AM* presents cases of contraposition and (like *IdW*) conversion *per accidens* ("If every man is an animal, then some animals are men").[42] The treatise concludes with a presentation of categorical syllogisms, which it takes to be equivalent to a consideration of composite conditional propositions, since according to *AM* composite conditionals and categorical syllogisms are demonstrated by the same rules.[43] There

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[33] It is a mistake then, I think, to say as Green-Pedersen does that Abelard in his *Dialectica* is simply following the views of William of Champeaux; see N. J. Green-Pedersen, "William of Champeaux on Boethius' Topics according to Orleans Bibl. Mun. 266," *Cahiers de l'Institut du Moyen-âge Grec et Latin,* 13 (1974), 135. Furthermore, in various twelfth-century commentaries on Boethius's *De topicis differentiis* there are references to the views of a Master W., whom Green-Pedersen has identified with William of Champeaux (ibid., pp. 15–16). But there are divergences in the views of the author of *IdW* and Master W. which need to be explained if the two are to be identified. For example, Master W. discusses Topics based on definition (ibid., pp. 20, 25), but *IdW* does not even include the Topic *from definition* in its list of Topics, nor does definition enter into *IdW*'s consideration of special Topics for more complicated conditionals where the Topics *from the antecedent* and *from the consequent* come into play. (These last two Topics are not original with William of Champeaux as Green-Pedersen has claimed [Green-Pedersen, "The Doctrine," p. 132]; they can be found, for example, in Garlandus Compotista *Dialectica,* ed. de Rijk, p. 114.)

[34] L. M. de Rijk, "Some New Evidence on Twelfth-Century Logic," *Vivarium,* 4 (1966), 8, 22.

[35] De Rijk, *Logica Modernorum,* vol. II, pt. 2, p. 85.

[36] Ibid., vol. II, pt. 2, pp. 86–95.

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37. Ibid., vol. II, pt. 2, p. 85.
38. Ibid., vol. II, pt. 2, pp. 87, 91.
39. Ibid., vol. II, pt. 2, p. 92. For Abelard's examples, see *Dialectica*, ed. L. M. de Rijk, (Assen: Van Gorcum, 1970), p. 349.
40. De Rijk, *Logica Modernorum*, vol. II, pt. 2, pp. 93–95.
41. Ibid., vol. II, pt. 2, pp. 95–96.
42. Ibid., vol. II, pt. 2, pp. 96–97.
43. Ibid., vol. II, pt. 2, p. 97: "*De hac que constat ex cathegorica et ypothetica nunc dicetur. Sed quia doctrina omnis est sillogismorum cathegoricorum et istarum propositionum ypotheticarum et quia regulis fere eisdem demonstrantur sillogismi cathegorici et huiusmodi ypothetice propositiones, simul dicemus de cathegoricis sillogismis et huiusmodi ypotheticis propositionibus.*"

follows a presentation of all the valid moods in the three figures of the syllogism. For each valid mood, *AM* presents a rule governing the inference in the same way it presented rules for the inferences in the preceding sections, assuming apparently that syllogistic inferences are one more variety of Topical inference.

Introductiones Montane minores

Introductiones Montane minores (*IMm*), which de Rijk also places in the school of Alberic at Mont Ste. Geneviève and dates around 1130,[44] is very similar to *AM*. The transition which is apparent in *AM*, away from the treatment of the Topics represented by *IdW*, is also found (perhaps to an even greater extent) in *IMm*. Like *AM*, *IMm* distinguishes *whole* and *part* into *genus* and *species* on the one hand, and *integral whole* and *part* on the other; and it also recognizes four kinds of equals and of opposites. Whereas *AM* attributes the distinction among kinds of opposites to Boethius,[45] however, *IMm* (like Abelard[46]) attributes the distinction to Aristotle.[47] As far as the general organization of the treatment on Topics is concerned, *IMm* simply considers each Topic in turn (except for the Topics *from a whole* and *from a part*, which it treats together), although traces of the older organization by subject, predicate, and so on can still be found in *IMm*. Occasionally, for example, a rule is said to be "from the part of the subject"[48] or "from the part of the predicate";[49] but generally speaking, the discussion of Topics in *IMm* deals successively with whole and part, equals, opposites, and immediates. Furthermore, *IMm* shows increased knowledge of or interest in Boethius's work on the Topics; for instance, in examining the Topic *from an equal*, it considers briefly the Boethian Topic *from description*.[50] Of all the treatises in this early group, it is the only one, as far as I know, to mention any of the Boethian topics besides the standard five. Some of its examples are taken from Boethius, too,[51] much more so than the other treatises so far considered.

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[44] De Rijk, "Some New Evidence on Twelfth-Century Logic," pp. 8, 22.

[45] De Rijk, *Logica Modernorum*, vol. II, pt. 2, p. 93.

[46] *Dialectica*, ed. de Rijk, p. 369.26.

[47] De Rijk, *Logica Modernorum*, vol. II, pt. 2, p. 62.

[48] Ibid., vol. II, pt. 2, p. 47.3.

[49] Ibid., vol. II, pt. 2, p. 52.30.

[50] Ibid., vol. II, pt. 2, p. 60.

[51] Ibid., vol. II, pt. 2: "*depellere morbos utile est mederique vulneribus utile est*" (p. 58.4–5; cf., *De top. diff.* 1188D–1189A). "*Socrates laudat Tullium; ergo non debet vituperare Demostenem*" (p. 61.5–6; *cf. De top. diff.* 1199C).

Two things are especially striking about *IMm*. One is that of all the treatises so far considered, it is the only one that contains serious philosophical examination of the maximal propositions it presents, giving arguments for and against accepting them. In addition, *IMm*, like Abelard, explicitly considers what the criteria for a good inference are,[52] and it worries about whether the inferences warranted by any given maximal proposition are in fact necessary inferences. This latter worry *IMm* explicitly associates with Abelard.[53] Another noteworthy feature of *IMm* is that its author knows Abelard's work and is generally hostile to it, several times attacking Abelard by name.[54]

If de Rijk's dating of this treatise and his conclusions about the composition of Abelard's *Dialectica* are correct,[55] then *IMm* was written several years after Abelard wrote his commentary on Boethius's *De top. diff.* (the *Glossae*) but before the third and final revision of Abelard's *Dialectica*. This makes sense of two other features of *IMm*.

In the first place, *IMm* claims that although Abelard accepts as necessary the *argument* 'Socrates is a man; therefore, he is an animal,' he does not accept as necessary the *consequence* 'If Socrates is a man, he is an animal.'[56] In the final version of *Dialectica*, Abelard does accept this consequence as necessary.[57] Furthermore, in the *Dialectica* there is little if any stress on the philosophical implications of the distinction between an argument and a consequence. In Abelard's *Glossae*, however, there is considerable discussion of this distinction; and though I did not notice any discussion in the *Glossae* of this particular example, the worry about the implications of the distinction is a recurrent theme in the *Glossae*.[58]

Second, though *IMm* is clearly hostile to Abelard and repeatedly rejects his positions in connection with the Topics,[59] it says nothing at all about Abelard's theory that syllogistic inferences are not subsumable under the Topics but rather altogether independent of them, a theory that is plainly at variance with the views characteristic of the early twelfth-century treatises I have been discussing. *IMm* is incomplete and lacks a section on categorical syllogisms, so that we cannot say with certainty what *IMm*'s position is with regard to the Topical dependence of categorical syllogisms. There is, however, some reason for thinking that *IMm* is in accord with the early twelfth-century position and does not reject maximal propositions for categorical syllogisms. In the discussion of composite conditionals, *IMm* frequently talks about syllogisms warranted by maximal propositions. By 'syllogisms' in this case, *IMm* means hypothetical syllogisms. But it shows no sign of self-consciousness in using the word 'syllogism' in connection with a Topical inference, and it includes no qualifying remarks indicating to the reader that 'syllogisms' in this context does not include categorical syllogisms. And it seems reasonable to expect some remarks along these lines if *IMm* were adopting what must have been a fairly new logical theory about the status of categorical syllogisms.

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[52] Ibid., vol. II, pt. 2, p. 46. For a discussion of the comparable passages in Abelard, see essay 5.

[53] Ibid., vol. II, pt. 2, p. 63.18ff. For identification of the Peter in this passage with Peter Abelard, see de Rijk, "Some New Evidence on Twelfth-Century Logic."

[54] Cf. de Rijk, *Logica Modernorum*, vol. II, pt. 2, pp. 17.6–8, 24.9–11, 34.3–6, 48.5–11, 59.23–29, 63.18–30, 64.1ff.

[55] Abelard, *Dialectica*, ed. de Rijk, xxi–xxiii.

[56] De Rijk, *Logica Modernorum*, vol. II, pt. 2, p. 63.

[57] *Dialectica*, ed. de Rijk, pp. 340.10–25 and 346.30–33.

[58] Cf., e.g., Abelard, *Super Topica glossae*, ed. Dal Pra, pp. 243–244, 298, 321, 322.

[59] Cf. de Rijk, *Logica Modernorum*, vol. II, pt. 2, pp. 48.5ff, 59.23ff., and 63.18ff.

Abelard, Topics, and Syllogisms

The extant twelfth-century commentaries on Boethius's *De top. diff.* give us reason to believe that that theory about the status of categorical syllogisms was controversial and that it was associated with Peter Abelard. A number of the commentaries know of the claim that syllogistic inferences hold in virtue of their form and not because they are warranted by a Topic.[60] In some of those commentaries this view is associated with views similar to Abelard's or even explicitly ascribed to a Master P., who Green-Pedersen argues should be identified as Abelard.[61] And, in general, the commentaries that raise the issue of the Topical dependence of categorical syllogisms recognize it as controversial. For example, one commentary attributes the view that syllogisms are independent of Topics to "our master" in a controversy with a Master W., who is apparently William of Champeaux; and the other views associated with "our master" suggest that he may be Abelard.[62] Another commentary attributes the claim about the Topical independence of syllogisms to Master P.[63] and attacks it as completely mistaken.[64] Yet another commentary knows of the view but considers it a nominalist error;[65] and to refute the proponents of this error out of their own mouths, the commentary cites a view which seems to come from Abelard's *Glossae*.[66]

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[60] For a survey of these commentaries see Green-Pedersen, "William of Champeaux" and "The Doctrine of 'maxima propositio.'" For the commentaries, see Green-Pedersen, "The Doctrine of 'maxima propositio,'" esp. pp. 143–144, also 138, 139, 141–142; and Green-Pedersen, "William of Champeaux," pp. 26–27, 27–30.

[61] For the identification of Master P. with Abelard, see ibid., pp. 19, 27, and 29; cf. also Green-Pedersen, "The Doctrine of 'maxima propositio,'" p. 141.

[62] Green-Pedersen, "The Doctrine of 'maxima propositio,'" p. 141.

[63] Ibid.

The evidence from these commentaries and our examination of early twelfth-century treatises, then, suggests that the separation of categorical syllogisms from Topical inferences in the twelfth century was controversial and original with Abelard. Up to the time of *IMm* around 1130, we find no recognition of this view, which plays so large a part in Abelard's *Dialectica*, but in the commentaries we have evidence that it was a very controversial view, which tended to be associated with Abelard.

Abelard's *Glossae*

It is interesting in this connection to look more closely at Abelard's *Glossae*. It seems to me that in the *Glossae*, although Abelard does accord a special status to categorical syllogisms and although he is moving in the direction of separating syllogisms from Topical inferences, he has not yet divorced the two but, on the contrary, still does permit Topics for syllogisms, as can be seen in three ways. In the first place, he does not reject Boethius's claim that certain Topics are appropriate for syllogisms. Instead he maintains that it is not unfitting to say that rules governing syllogisms, such as 'whenever A is in all B and C in all A, then C is also in all B,' are Topics. Furthermore, according to Abelard (who is again defending a Boethian view), syllogisms can also be discovered on the basis of Topics.[67] He also talks explicitly about maximal propositions for syllogisms and asks how they are to be understood, giving as an example a rule governing syllogisms in *Celarent*.[68]

His tolerance of Topics within syllogistic is plain also in his failure to provide a clear general distinction between formal logical laws and maximal propositions, even to the extent to which he does so in *Dialectica*. Some of the logical rules which he argues in *Dialectica*[69] must *not* be taken as maximal propositions (because to do so would make some syllogistic inferences Topically dependent), he accepts without comment in the *Glossae* as maximal propositions, such as various rules associated with the Topics *from the antecedent* and *from the consequent*.[70]

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[64] Ibid., p. 156.

[65] Ibid., pp. 141–142, n. 88.

[66] Ibid.; Green-Pedersen goes too far in claiming that the commentary gives a literal quotation from the *Glossae*.

[67] Abelard, *Super Topica glossae*, ed. Dal Pra, p. 213.

[68] Ibid., pp. 241.7ff.

[69] E.g., *Dialectica*, ed. de Rijk, pp. 364–369, esp. 368.25–28.

Third, though he recognizes that syllogistic inferences are necessary in virtue of their form and thus not on a par with other Topical inferences,[71] he nonetheless seems to follow Boethius in agreeing that the necessary arguments used in demonstration rather than dialectic can also be constituted from Topics,[72] so that knowledge of Topics *is* useful, as Boethius claims, for both demonstration and dialectic.[73] There are two ways of explaining this claim of Boethius's, according to Abelard. Either it is the case that syllogisms do not have Topics but there are other necessary, demonstrative arguments which are not syllogisms and which do have Topics. Or, he says, Topics can after all be said to pertain in a certain way to syllogisms because they confer evidence on syllogisms by the intermediary of enthymemes, of which Topics are characteristic.[74] This last passage especially, I think, demonstrates the ambivalence of Abelard's views in the *Glossae* about the Topical dependence of syllogisms and shows the difference between the *Glossae* and the *Dialectica*, in which Abelard makes a sharp and unequivocal separation between syllogisms and Topics.[75]

Abelard's *Logica "Ingredientibus"* and *Dialectica*

In the *Logica "Ingredientibus"*, which is roughly contemporary with the *Glossae*,[76] there is a passage that might have come right from the *Dialectica*: "The Topic for this inference is from the destruction of the consequent, according to those who accept Topics for a syllogism. But where there is the perfected form of a syllogism, we do not accept a Topic."[77] This passage is puzzling for at least two reasons. First, it jars with Abelard's own practice in this treatise and in the roughly contemporary *Editio super Aristotelem De Interpretatione.*[78] There he consistently gives Topics as warrants for arguments, which he presents in Topical rather than syllogistic form. If when he wrote this treatise he already held the views on Topics and syllogisms which find expression in the *Dialectica,* it seems peculiar that he would still rely so heavily on Topical rather than syllogistic arguments and warrants. Second, if Abelard had clearly and publicly rejected the traditional view of the Topical dependence of syllogisms by 1120, it is odd that we find no hint of this in *IMm,* which is considerably later than *Logica "Ingredientibus",* especially since the author knows and is hostile to Abelard's views; and it is even odder that we do not find these same views expressed by Abelard himself in his *Glossae.*

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[70] E.g., *Super Topica glossae*, ed. Dal Pra, p. 244.

[71] Ibid., pp. 315.12–13 and 318.10–15.

[72] Ibid., p. 318.22–33.

[73] Ibid., p. 319.8–15.

[74] Ibid., p. 319.25–31.

[75] See essay 5.

[76] See de Rijk's summary of the dating of Abelard's works on logic in Abelard, *Dialectica*, pp. xi–xii.

[77] Ed. Bernhard Geyer, in *Peter Abaelards Philosophische Schriften, Beiträge zur Geschichte der Philosophie des Mittelalters, XXI*, 1–3, (Münster, Aschendorff 1919–27), p. 445.1–3: *"Locus vero illationis a destructione consequentis secundum eos qui in syllogismo locos recipiunt. Nos vero ubi est perfecta complexio syllogismi, locum non recipimus."*

The evidence from *IMm* and the *Glossae* suggest that Abelard's innovative divorce between syllogisms and Topics was developed during the last stages of his career in connection with the third and final revision of the *Dialectica,* in the period 1132–36, when Abelard returned for a prolonged stay at Melun and during his last year at Mont Ste. Geneviève.[79] The passage from *Logica "Ingredientibus"* suggests that Abelard held such ideas much earlier in his career. But whether they stem from the 1130s or from before 1120, and whatever Abelard's own influence may have been,[80] these views of Abelard's eventually triumphed, as can be seen in the period after Abelard, especially in the work of the terminists.

Ars Meliduna and *Tractatus Anagnini*

The second half of the twelfth century, after Abelard and before the terminists, constitutes something of an interregnum. In their concern with conversion, for example, and in their concentration on those few Topics which were traditionally discussed earlier in the twelfth century, *Ars Meliduna* (stemming from Melun around 1154–1180[81]) and *Tractatus Anagnini* (from Italy[82] at the end of the century[83]) resemble early twelfth-century logic treatises more than those of the terminists.

[78] Edited in *Super Topica glossae,* ed. Dal Pra.

[79] Cf. Abelard, *Dialectica,* ed. de Rijk, pp. x–xi.

[80] For a discussion of Abelard's influence as a logician, see D. E. Luscombe, *The School of Peter Abelard* (London: Cambridge University Press, 1969), esp. pp. 70–74, 86–87, 93, and 145–146.

[81] Excerpted in de Rijk, *Logica Modernorum,* vol. II, pt. 1, pp. 292–390. Information about the origin and date of the treatise is given on pp. 272–289.

[82] Ibid., vol. II, pt. 1, p. 397.

[83] For a correction of de Rijk's dating of this treatise, see Braakhuis, *De 13de eeuwse Tractaten,* pp. 407–408, n. 89.

They are, however, unlike those earlier treatises in certain ways in which they also resemble Abelard; for example, they organize their discussion of Topics altogether by successive considerations of individual Differentiae, rather than by grouping the Differentiae under the headings *from the predicate, from the subject,* and so on. Most important in this regard, I think, is the fact that both these treatises distinguish between Topical arguments and syllogistic or complexional arguments. Both treatises still do make some connection between Topics and syllogisms. *Tractatus Anagnini,* for instance, devotes its very brief discussion of categorical syllogisms largely to a consideration of which Topics are useful for finding middle terms for certain sorts of categorical syllogisms.[84] *Ars Meliduna* claims that in one way syllogisms can be considered to have their necessity from Topics and in another way from their form alone.[85] But both treatises recognize syllogistical and Topical arguments as two distinct kinds of argument.[86] What is especially interesting is that neither treatise appears to argue for the soundness of this distinction. The separation of syllogisms from Topical arguments, which is nonexistent in the earlier twelfth-century treatises, elaborately argued for by Abelard in his *Dialectica,* and vigorously disputed in twelfth-century commentaries on *De top. diff.*, is taken for granted in these two treatises and presented without either argument or polemic. Nonetheless, neither treatise is as radical as Abelard in its divorce of syllogisms from Topics; for example, both still place their treatment of syllogisms after their discussion of Topics.[87]

William of Lucca's *Summa dialectice artis*

Like *Ars Meliduna* and *Tractatus Anagnini,* the treatise *Summa dialectice artis* by William of Lucca, which dates from the last quarter of the twelfth century,[88] shows strong traces of early twelfth-century logic but also significantly resembles Abelardian views. William retains the old twelfth-century classification of Topics, *from a predicate, from a*

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[84] De Rijk, *Logica Modernorum,* vol. II, pt. 2, p. 246.1–29.

[85] See the excerpt from this treatise in Jan Pinborg, "Topik und Syllogistik im Mittelalter," in F. Hoffman et al., eds., *Sapienter Ordinare. Festgabe für Erich Kleineidam* (Leipzig: St. Benno Verlag, 1969), p. 162.

[86] See *Tractatus Anagnini,* in de Rijk, *Logica Modernorum,* vol. II, pt. 2, pp. 235, 256–257; and *Ars Meliduna,* in ibid., vol. II, pt. 1, pp. 274, 350, 352, 378–379.

[87] In this respect, *Summe Metenses* resembles *Tractatus Anagnini* and *Ars Meliduna,* though in many other respects it is assimilable to terminist logic treatises.

[88] William of Lucca, *Summa dialectice artis,* ed. Lorenzo Pozzi (Padua: Liviana Editrice, 1975), p. 6. References to this work are given by Pozzi's paragraph numbers.

subject, from both predicate and subject, from the whole.[89] Double Topics, such as *from a part and a whole,* proliferate far past the meager list of them in such treatises as *IdW.*[90] William considers fifteen double Topics, including such exotic examples as *from an equal and from opposites*[91] and *from a part and from immediates.*[92] Conversion inferences are also said to be warranted by Topics.[93] Finally, William is explicit about the connection between Topics and syllogisms: "all these Topics are particularly useful for three genera of arguments, namely, induction, example, and enthymeme. By means of the same [Topics] we have said[94] that syllogisms are confirmed, and some also assign the Topics discussed above to these syllogisms."[95] He places his chapter on syllogisms after his chapter on Topics. But unlike the author of the early twelfth-century logics, William knows and uses the entire Boethian classification of Topics.[96] He also discusses at length the moods and figures of the categorical syllogism.[97] He knows about the Abelardian concern to distinguish necessary from only probable consequences, though he himself does not address that concern in this treatise; and he recognizes and rejects one of Abelard's views on consequences.[98] Finally, like Abelard, William distinguishes carefully between Topical and syllogistic or "complexional" inferences: "Some arguments are Topical and others complexional; the complexional alone we call syllogisms."[99]

Ars Meliduna, Tractatus Anagnini, and *Summe dialectice artis,* then, mix the older logic of the early twelfth century, characterized especially by the Topical dependence of categorical syllogisms, with the newer logic represented by Abelard's views in his *Dialectica.* In *Dialectica Monacensis,* which stems from England at the end of the twelfth century,[100] we can see the victory of the newer, Abelard-like logic and the last step in the separation of Topics and syllogisms. In this treatise, which more nearly resembles Peter of Spain's handling of Topics than that of *IMm,* for example, the chapter on categorical syllogisms is placed *before* the chapter on Topics; and in the treatment of syllogisms, there is no hint of the old connection between Topics and syllogisms. This is standard for logic treatises from the first half of the thirteenth century. In *Introductiones Parisienses, Logica "Ut dicit"* and *Logica "Cum sit nostra,"* as well as in Peter of Spain's *Tractatus,* William of Sherwood's *Introductiones in logicam,* Lambert of Auxerre's *Logica,* and Roger Bacon's *Sumule dialectices,* the divorce between Topics and syllogisms is complete, and the chapter on syllogisms precedes the chapter on Topics. The *Summe Metenses* of Nicholas of Paris is the latest treatise I know of which does not fall into this pattern but puts its chapter on syllogisms before the chapter on Topics. What Nicholas says at the beginning of his chapter on syllogisms to justify his placing it where he does—after discussion of various properties of terms, Topics, and fallacies—is interesting:

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[89] Ibid., 10.10.

[90] Ibid., 10.81ff.

[91] Ibid., 10.93.

[92] Ibid., 10.95.

[93] Ibid., 10.98.

[94] Ibid., 9.26: "*At quoniam locales priores sunt complexionalibus, utpote partes earum, ideo de localibus primitus doctrinam facientes ad earum evidentiam de loco, a quo firmitatem contrahunt, doceamus.*"

[95] Ibid., 10.99: "*Qui omnes loci maxime tribus generibus argumentationum subserviunt videlicet inductioni, exemplo et entimemate. Per eosdem inde firmos esse diximus sillogismos in quibus equidem sillogismis nonnulli et predictos locos assignant.*"

[96] Ibid., 10.14ff.

[97] Ibid., 11.01ff.

[98] Ibid., 12.06–12.08.

[99] Ibid., 9.26: "*Sed cum argumentationum alie sunt locales, alie conplexionales, solas conplexionales dicimus sillogismos.*"

> As the Philosopher says, the end is that for the sake of which all the other things [exist], and which imposes necessity and being on those things which exist for the sake of that end, and when the end is attained, things rest. Therefore since things are this way [also] in the study of logic and since [we have discussed], to the extent required by the nature of an introduction, terms and their conditions, from which propositions arise, and propositions and their circumstances, from which argumentations arise, and dialectical Topics, from which arguments are taken, and sophistical Topics, which in effect impede argumentation, now we must consider argumentation and its species, especially that [species] which is called 'syllogism.'[101]

He suggests here, whether rightly or wrongly, a thread on which to string all the central concerns of logic in the twelfth century by claiming that (in his own view, at least) the study of Topics, of fallacies, and of the properties of terms is necessarily prerequisite for a study of arguments, in virtue of being either studies of the elements of arguments (such as the study of properties of terms) or studies of those things that facilitate or impede good arguments (such as Topics and fallacies, respectively). Furthermore, if there is anything in this claim of Nicholas's, it makes some contribution toward explaining the concentration of interest on properties of terms in the logic of the first half of the thirteenth century. When, as with the terminists, all Topical arguments are thought to be reducible to syllogisms, and when consideration of the syllogism is thought to be completed by the presentation of moods and figures taken from Aristotle's *Prior Analytics*, all that remains of the central concerns of twelfth-century logic that is of any philosophical interest and that offers any scope for investigation is fallacies and the properties of terms.

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[100] De Rijk, *Logica Modernorum,* vol. II, pt. 1, pp. 410–414.

[101] Ibid., vol. II, pt. 1, p. 478: "*Quoniam, ut dicit Philosophus, fines [sic] propter quem omnia alia, [quam] imponit necessitatem et esse eis que sunt ad finem; quo adepto quiescitur—; cum ita se habent in intentione logices, ideo habito de terminis et conditionibus eorum ex quibus fiunt propositines [sic], et de propositionibus et circumstantiis suis, ex quibus fiunt argumentationes, et de locis dialeticis, ex quibus argumenta sumuntur, et de locis sophisticis qui prorsus argumentationem impediunt, quantum introductionis ratio postulabat—nunc videndum est de argumentatione et speciebus eius, maxime de illa que sillogismus dicitur.*"

7

Terminist Logicians on the Topics

Peter of Spain, William of Sherwood, and Lambert of Auxerre all included a chapter on the Topics in their logic texts.[1] Their treatments of the Topics differ from one another in significant ways: Peter's treatise is straightforward and rather elementary, William's includes a laborious attempt to show that Topical arguments can be reduced to syllogisms, and Lambert's is more detailed and sophisticated than either of the other two. They are enough alike, however, that for present purposes they can be treated together. In what follows, I will concentrate on Peter of Spain's *Tractatus*,[2] which was the most widely used textbook of logic on the Continent from the late thirteenth to the end of the fifteenth century.[3] Its discussion of the Topics is very similar to discussions found in several of the logic treatises produced by scholastics contemporary with or earlier than Peter.

Besides being a representative and influential treatment of the Topics, Peter's discussion is heavily dependent (directly or, more likely, indirectly)[4] on Boethius's account. The chapter on dialectic in the *Tractatus* is like *De top. diff.* in organization. It begins with a series of definitions and then lists the Topics with a description and example of each. The definitions and the listing are those in *De top. diff.*, and in

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This paper is a revised version of "Peter of Spain on the Topics," published in *Boethius and the Liberal Arts*, ed. Michael Masi (Bern: Verlag Peter Lang, 1981), pp. 35–50.

[1] See Peter of Spain, *Tractatus*, ed. L. M. de Rijk (Assen: Van Gorcum, 1972), pp. 55–77; Lambert of Auxerre, *Logica*, ed. Franco Alessio (Florence: La nuova Italia Editrice, 1971), pp. 121–140; and William of Sherwood, *Introductiones in logicam*, ed. Martin Grabmann (Sitzungsberichte der Bayerischen Akademie der Wissenschaften. Philosophisch-historische Abteilung, Heft 10, 1937), pp. 56–74, and translated as *William of Sherwood's Introduction to Logic*, trans. Norman Kretzmann (Minneapolis: University of Minnesota Press, 1966), pp. 69–104.

[2] Ed. de Rijk.

[3] Ibid., pp. xcv–c.

[4] Cf., *Tractatus*, p. xciii, n. 5.

some places Peter's text amounts to a quotation from Boethius.[5] Some of the recent literature has suggested that Peter's work on the Topics is simply a slightly varied compilation drawn from Boethius's *De top. diff.* Otto Bird, for example, who has published a number of pioneering articles on the medieval Topics, says that Peter's discussion of the Topics "is little more than a summary of the first half of BDT [*De top. diff.*],"[6] and that "Peter of Spain made a precis of it [*De top. diff.*] (primarily of the second book) and provided additional Maxims in the fifth tract of his Summulae [*Tractatus.*]."[7] But such a view shows a mistaken understanding of both Peter and Boethius. Here I will examine Peter's discussion of the Topics in considerable detail to exhibit clearly his method for using Topics and in consequence to suggest something about the stage of logic in the first half of the thirteenth century.

Peter's Understanding of Topics

In contrast with the early twelfth-century logic texts discussed in the preceding essay, Peter's *Tractatus* has very little or nothing on hypothetical propositions and syllogisms and only a short section on conversion. (The same can be said of William and Lambert with the exception that Lambert has a lengthy section on conversion, especially the conversion of modal propositions.) Instead, the *Tractatus* has a long exposition of the categorical syllogism, and Topical (as well as sophistical[8]) arguments are explained in terms of the categorical syllogism. On Peter's view, Topical arguments are dialectical syllogisms, and he makes a sharp distinction between dialectical and demonstrative syllogisms. The premisses of dialectical syllogisms are not necessary but only probable or readily believable.[9] Consequently, they produce only opinion, not knowledge, and the study of Topics is an art, not a science.[10] So dialectical or Topical arguments are plainly given a subsidiary status, secondary to demonstration and demonstrative syllogisms.

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[5] Cf., for example, Peter, *Tractatus*, p. 55.17 and Boethius, *De top. diff.*, 1180C4–5, Peter p. 55.23 and Boethius 1183A9–10, and Peter p. 56. 16–18 and Boethius 1184B13–C1.

[6] Otto Bird, "The Tradition of the Logical Topics: Aristotle to Ockham," *Journal of the History of Ideas*, 23 (1962), 313.

[7] Otto Bird, "The Formalizing of the Topics in Mediaeval Logic," *Notre Dame Journal of Formal Logic*, 1 (1960), 140. Jan Pinborg echoes Bird's view of Peter. See "Topik und Syllogistik im Mittelalter," in *Sapienter Ordinare: Festgabe fuer Erich Kleineidam*, ed. F. Hoffmann, L. Scheffczyk, and K. Feiereis (Leipzig: St. Benno Verlag 1969), p. 164; and *Logik und Semantik im Mittelalter* (Stuttgart-Bad Cannstatt: Frommann-Holzboog 1972), p. 75. De Rijk, ed., *Tractatus*, p. xciii, seems to agree at least in part with Bird's view: "This tract [chap. V of *Tractatus*] is not a compilation from Aristotle's *Topica* but from Boethius' *De topicis differentiis I* and *II*, with some additions from Aristotle's *Topics*." He argues in note 5 on the same page that Peter's treatment is not taken directly from Boethius; rather, he says, it is "useful to point to the treatment of the *loci* in the Logica *Cum sit nostra*, pp. 438–445 or to that in the somewhat older work, *Dialectica Monacensis*, pp. 528–555." De Rijk's point is very likely right, but what can be inferred from the claim in the text and the note is that Peter's work on Topics amounts only to an indirect compilation from Boethius's *De top. diff.*

[8] *Tractatus*, pp. 90–93.

Peter's chapter on the Topics begins with a discussion of the word '*ratio*' and its different senses, because in one sense of the word, *ratio* is the genus of argument in Boethius's definition of argument.[11] According to Peter, *ratio* in that definition is a *middle* (or intermediate) entailing or implying a conclusion.[12] An argument, which is a reason (*ratio*) producing belief regarding something that was in doubt, is a middle proving a conclusion, and a conclusion is a proposition that must be confirmed by an argument.[13] To understand clearly what Peter means by 'argument' here, it would be helpful to know more precisely what he conceives of as a middle, but Peter says only that a middle is what has two extremes (p. 55.22). In the context it is hard not to suppose that by 'middle' Peter means to refer to the middle term of an Aristotelian syllogism,[14] but we will see as we go on whether such an interpretation is justified.

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[9] See ibid., p. 90.18–24; cf. William of Sherwood's *Introductiones*, ed. Grabmann, p. 56; and Lambert of Auxerre's *Logica*, ed. Alessio, pp. 105ff. and 141ff.

[10] There is a sense in which dialectic is a science. Dialectic can be thought of as the use of Topics to construct and evaluate probable arguments (this is *dialectica utens*), or it can be thought of as reflection on and analysis of such use of Topics (*dialectica docens*). *Dialectica utens* is only an art, not a science; its arguments are Topical and its conclusions only probable. *Dialectica docens* may be thought of as the study of *dialectica utens*. It uses demonstrative arguments about *dialectica utens*; it produces knowledge, rather than opinion; and it is a science. For examples of this distinction, widespread among scholastics, see, for example, Lambert of Auxerre's *Logica*, pp. 5–6; Simon of Faversham's commentary on Peter of Spain's *Tractatus* in L. M. de Rijk, "On the Genuine Text of Peter of Spain's *Summule logicales*," *Vivarium*, 6 (1968), 81; Boethius of Dacia, *Quaestiones super librum Topicorum*, ed. N. J. Green-Pedersen and Jan Pinborg (Hauniae: Gad, 1976), pp. 12–13. For the distinction in the unedited commentaries on Aristotle's *Topics* by Kilwardby, Albert the Great, Adenulph of Anagni, Simon of Faversham, Radulphus Brito, and Angelo of Camerino, see N. J. Green-Pedersen, "On the Interpretation of Aristotle's Topics in the Thirteenth Century," *Cahiers de l'Institut du Moyen-âge grec et latin*, 9 (1973), 14–15. Green-Pedersen suggests that the distinction may go back to Abelard; see Abelard, *Super Topica glossae*, in *Scritti di Logica*, ed. Mario dal Pra (Florence: La Nuova Italia Editrice, 1969), p. 315.

[11] Cf. *De top. diff.* 1174D1–2.

[12] "*Medium inferens conclusionem*" (p. 55.12–14).

[13] *Tractatus*, p. 55.13–18. Peter says, "*argumentum est . . . medium probans conclusionem que debet confirmari per argumentum*" (p. 55.17–18). He seems to mean something like the two different definitions I suggest here and not one circular definition, for he goes on to spell out the definition of 'conclusion': "*Est enim conclusio argumento vel argumentis approbata propositio*" (p. 55.19).

After a brief discussion of the difference between argument and argumentation, in which Peter provides Boethius's definition of argumentation,[15] he considers the four different kinds of argumentation. Syllogisms have been treated at length in an earlier treatise (or chapter) of the book, and the bulk of this section on argumentation is devoted to the enthymeme. Peter explains briefly that an enthymeme is a syllogism with a premiss missing and then shows how enthymemes are reduced to syllogisms:

> It is important to know that every enthymeme must be reduced to a syllogism. In every enthymeme there are three terms, as in a syllogism; of these terms, two are put in the conclusion and are the extremes, and the other is a middle and is never put in the conclusion. Of the extremes, one is taken twice in the enthymeme and the other once. A universal proposition must be produced from the extreme taken once and the middle in keeping with the requirement of [the syllogistic] mood. In this way, a syllogism will be produced.[16]

He gives the example, "Every animal is running; therefore, every man is running." The premiss needed to make the enthymeme a syllogism, according to Peter's theory above, is a universal proposition composed of the middle, *animal*, and the extreme taken only once, *man*. The proposition can be negative or affirmative, and the middle can be the subject or the predicate; and so the resulting syllogism will be either first or third figure. But there is no valid third-figure syllogism with a universal affirmative conclusion; and the only first-figure syllogism with a universal affirmative conclusion is *Barbara*. So the missing premiss will have to be a universal affirmative with the middle term as predicate, namely, 'Every man is an animal.' Peter simply gives the missing premiss in the passage without stating his reasons for choosing this combination of middle and extreme; but the reasoning I have provided to explain that choice of the missing premiss seems to be what Peter has in mind when he says that the missing premiss ought to be constructed "in keeping with the requirement of [the syllogistic] mood."

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[14] In the passage on enthymemes immediately following, Peter uses '*medium*' to refer to the middle term of a syllogism.

[15] "Argumentation is the explication of the argument in discourse . . . the whole discourse composed of premises and conclusion" (pp. 55.23, 56.4–5; cf., for example, *De top. diff.* 1174D8–9 and 1183B4–11 in conjunction with 1184D10–14).

[16] P. 57.3–10. "*Sciendum autem quod omne entimema debet reduci ad sillogismum. Ergo in quolibet entimemate sunt tres termini sicut in sillogismo. Quorum terminorum duo ponuntur in conclusione et sunt extremitates, et alius est medium et numquam ponitur in conclusione. Illarum autem extremitatum altera est sumpta bis in entimemate, altera semel. Et ex illa extremitate semel sumpta et medio debet fieri propositio universalis secundum exigentiam modi et sic fiet sillogismus.*"

Peter begins his general discussion of Topics with a definition of a Topic and a statement of its function. An argument is confirmed by a Topic, Peter says; and a Topic is the seat of an argument, or that from which a fitting argument for the question at issue is drawn.[17] Since Peter earlier defined an argument as a certain kind of middle, what is drawn from a Topic is a middle of some sort. Hence a Topic functions as part of the proof for a conclusion, and it does so by providing a middle.

Included in this general discussion of Topics is some of the basic theory found in Boethius. Peter divides a Topic into maximal proposition (which he abbreviates as '*maxima*,' 'maxim') and Differentia, which he defines much as Boethius does: the Differentia is a differentia (specific difference) of maximal propositions; and a maximal proposition, or maxim, is a proposition for which there is no prior or better-known proposition. The Topics are also divided into the three main groups found in *De top. diff.* Book II (the Themistian division of the Topics), namely, intrinsic, extrinsic, and intermediate, depending on whether the argument is taken from the nature of one of the terms in the argument's question or from what is external to their nature or partly from their nature and partly from without (p. 59).

The first Topic Peter gives in detail is the intrinsic Topic *from definition*. The Topic *from definition*, he says, is the relationship of a definition to what it defines (the *definitum*), and the Topic contains four arguments and four maxims (p. 60.10–12). Peter identifies the four arguments by specifying four sorts of premisses for enthymemes: "First, by using the definition as the subject in an affirmative proposition; second, by using it as the predicate in an affirmative proposition; third, by using it as the subject in a negative proposition; and fourth, by using it as the predicate in a negative proposition" (p. 60.13–15). Since many things are definitions, this Topic contains not four arguments but four sorts of argument. The rest of the section on this Topic consists in examples of these four sorts of arguments and appropriate maxims for them; and the examples for this and every other Topic in Peter's treatise on the Topics are all enthymemes.

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[17] P. 58.10–18; cf. *De top. diff.* 1185A4–5 and ff.

Peter does not say that his examples are enthymemes; and all the examples he gives for Topics, here and in the rest of Treatise V, differ in an important respect from the examples he gives of an enthymeme: the quantity of the propositions in all the examples for Topics is indefinite or singular rather than universal or particular. Nonetheless, I am regarding these examples as enthymemes for three reasons. First, they fit Peter's definition of enthymeme (closely paraphrased from Boethius, 1184B13-C1) at the beginning of this Treatise: "An enthymeme is an imperfect syllogism, that is, discourse in which the precipitous conclusion is derived without all the propositions having been laid down beforehand."[18] The definition does not exclude arguments composed of an indefinite premiss and conclusion. Furthermore, when Peter discusses indefinite propositions in connection with complete syllogisms, he does not exclude them altogether; he says only, "A syllogism cannot be produced from propositions which are all particular or indefinite or singular."[19] An enthymeme can be composed of an indefinite premiss and conclusion and still be reduced to a complete syllogism by the addition of one premiss, provided that premiss is universal. Second, at the start of this Treatise (pp. 56.10ff.) Peter gives an apparently exhaustive list of the varieties of argumentation, that is, the varieties of legitimate combinations of premises and conclusions (see p. 56.4–5); they are syllogism, induction, enthymeme, and example. It is hard to see how Peter's combinations of premiss and conclusion could be classified except as enthymemes because they are more like enthymemes than they are like syllogisms, inductions, or examples; and Peter gives no other classifications into which they might fit. Third, nothing turns on the indefinite quantity of the propositions in Peter's examples; nothing explicit or implicit in Peter's account makes much of the indefinite quantity of the propositions. In the rest of my analysis of Peter, therefore, I will refer to his examples of arguments as enthymemes.

Indefinite propositions can be interpreted either as universal or as particular propositions; for example, 'a man is an animal' should be taken as a universal, but 'a man is a father' as a particular. William of Sherwood's interpretation of indefinites and singulars often seems determined more by the needs of a certain syllogistic mood than by any theory about the nature of indefinites and singulars; for example, he takes 'an animal is not a quantity' as a particular[20] and 'Socrates is included under "every man"' as a universal.[21] In the discussion that follows, I will read Peter's indefinite propositions either as universals or as particulars, depending on what the context calls for.

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[18] "*Entimema est sillogismus imperfectus, idest oratio in qua non omnibus antea positis propositionibus infertur festinata conclusio*" (p. 56.16–18).

[19] "*ex puris particularibus vel indefinitis vel singularibus non potest fieri sillogismus*" (p. 45.1–2).

The four enthymemes given for the Topic *from definition* are

(1) A mortal rational animal is running; therefore, a man is running.
(2) Socrates is a mortal rational animal; therefore, Socrates is a man.
(3) A mortal rational animal is not running; therefore, a man is not running.
(4) A stone is not a mortal rational animal; therefore, a stone is not a man. [p. 60]

Their corresponding maxims are

(1′) Whatever is predicated of the definition is also predicated of the thing defined.[22]
(2′) Whatever the definition is predicated of, the thing defined is also predicated of.[23]
(3′) Whatever is removed from the definition is also removed from the thing defined.[24]
(4′) Whatever the definition is removed from, the thing defined is also removed from.[25] [Ibid.]

If we look at the arguments given for this first Topic in the light of the introductory material Peter presents at the beginning of this treatise, particularly the special consideration accorded to enthymemes and the method for reducing enthymemes to syllogisms, it is easy to suppose that the Topics are the instruments for reduction to syllogism (or to syllogistic inferences). Such a view of the Topics is not uncommon among twentieth-century scholars,[26] and is also taken by some later medievals.[27] Peter's younger contemporary, Lambert of Auxerre, appears to take Topical arguments in this way; at the end of his treatment of the Topics, he says,

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[20] *"Animal non est quantitas"* (*Introductiones*, ed. Grabmann, p. 59.21; trans. Kretzmann, p. 76).

[21] *"Sortes est sub eo, quod est omnis homo"* (ibid., Grabmann ed., p. 61.32–33; trans. Kretzmann, p. 80).

[22] *"quidquid predicatur de diffinitione, et de diffinito."*

[23] *"de quocumque predicatur diffinitio, et diffinitum."*

[24] *"quidquid removetur a diffinitione, et a diffinito."*

[25] *"a quocumque removetur diffinitio, et diffinitum."*

[26] See, for example, Jan Pinborg, "Topik und Syllogistik," p. 159.

> It can be said that [an argument depending on the Topics] is an enthymematic argumentation . . . and can be reduced to a syllogistic argumentation. . . . [For example,] 'a man is running, therefore a mortal rational animal[28] is running' is an enthymeme [composed of] the major [premiss] and conclusion. Let the minor premise be put forward, and there will be a syllogism in the third mood of the first figure [*Darii*] in this way: 'Every man is running; a mortal rational animal is a man; therefore, a mortal rational animal is running.' It should not cause surprise that what is taken as an indefinite in the enthymeme is taken as a universal in the syllogism, because a syllogism cannot be produced without a universal, although an enthymeme can by itself be produced correctly without a universal.[29]

William of Sherwood also regularly reduces Topical arguments to syllogisms.[30] In what follows, I will show how Peter's discussions of the first five Topics lend themselves to such a view of Topics and how Topics function according to that view. I will then show how Peter's Topics cannot be considered solely or primarily as instruments for reducing enthymemes to syllogisms and that they confirm arguments in a more complicated and perhaps looser way.

Peter's Method for Using Topics

If we consider the enthymemes for the Topic *from definition* according to Peter's method for reducing enthymemes to syllogisms, we see that in each enthymeme the middle term is *mortal rational animal* and the term taken only once is *man*. No valid syllogism contains exactly one or three negative propositions; there are three affirmative or one affirmative and two negative propositions in every valid syllogism. And every valid syllogism contains at least one universal premiss. So the missing premiss in each of the four enthymemes is a universal affirmative proposition whose two terms are *mortal rational animal* and *man*.

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[27] See, for example, Bird, "Formalizing of the Topics," p. 146; according to Bird, Burley, for example, thinks that the Topics reduce material inferences to formal inferences that hold good solely in virtue of their form.

[28] Reading *'animal'* for *'homo.'* The text as Alessio gives it is clearly mistaken.

[29] *"dici posset quod est argumentatio empthimemica . . . et ad sillogisticam argumentationem posset reduci . . . 'homo currit, ergo homo rationale mortale currit' empthimema est ex maiori et conclusione; et ponatur minor; erit sillogismus in tertio prime figure sic: 'omnis homo currit, animal rationale mortale est homo, ergo animal rationale mortale currit'; nec mirandum est si sumatur in sillogismo universalis, que sumetur in empthimemate infinita, quia sine universali non potest fieri sillogismus: empthimema vero bene potest fieri sine universali"* (*Logica*, pp. 139–140). I have no explanation for the curious assignment of quantity in the syllogism. Lambert's explanation seems both lame and artificial.

[30] I do not mean to imply nor is it clear that either William or Lambert thinks that the *primary function* of a Topic has to do with reduction to syllogism.

The first enthymeme will be reduced to a first-figure syllogism if we take the definition as the predicate in the missing premiss and to a third-figure syllogism if we take it as the subject. The premiss given in the enthymeme is the major premiss since the extreme in it is the predicate rather than the subject of the conclusion and hence this extreme is the major term; so the missing premiss is the minor premiss of the appropriate syllogism. The syllogism, then, will be a syllogism in IAI in either the first or third figures if we read Peter's indefinites as particulars. But since there are no such valid first-figure syllogisms, the enthymeme must be reduced to the third-figure syllogism *Disamis*; and the missing premiss is 'Every mortal rational animal is a man.'

In the second enthymeme, the missing premiss is the major premiss; and the appropriate syllogism is AII in the first or second figure, depending on whether the missing premiss is 'Every man is a mortal rational animal' or 'Every mortal rational animal is a man.' But there are no valid AII syllogisms in the second figure; so the premiss needed is again 'Every mortal rational animal is a man,' and the enthymeme reduces to a first-figure syllogism in *Darii*.

The third enthymeme reduces to OAO in either the first or third figures. There are no valid first-figure syllogisms in OAO so the appropriate syllogism here is the third-figure *Bocardo*, and the missing premiss is again 'Every mortal rational animal is a man.'

It seems clear that the propositions for the last enthymeme ought to be taken as universals, and the appropriate syllogism is one in AEE. If we add the same premiss here as we did to the other enthymemes, namely, 'Every mortal rational animal is a man,' we have an invalid first-figure syllogism. The other possibility is a second-figure syllogism in AEE; and there is such a valid syllogism: *Camestres*. So for this enthymeme the missing premiss is 'Every man is a mortal rational animal.'

The Topic following the Topic *from definition* is the Topic *from what is defined* (*the definitum*); and it, too, has four sorts of arguments and four corresponding maxims. The four enthymemes and the corresponding maxims are

(1) A man is running; therefore, a mortal rational animal is running.
(2) Socrates is a man; therefore, Socrates is a mortal rational animal.
(3) A man is not running; therefore, a mortal rational animal is not running.
(4) A stone is not a man; therefore, a stone is not a mortal rational animal. [p. 61]

(1′) Whatever is predicated of the thing defined is also predicated of the definition.[31]
(2′) Whatever the thing defined is predicated of, the definition is also predicated of.[32]
(3′) Whatever is removed from the thing defined is also removed from the definition.[33]
(4′) Whatever the thing defined is removed from, the definition is also removed from.[34] [Ibid.]

They reduce to the same syllogisms as those from definition: *Disamis, Darii, Bocardo,* and *Camestres*. For the first three enthymemes, the missing premiss is 'Every man is a mortal rational animal'; and for the last one, it is 'Every mortal rational animal is a man.'

The Topic *from explanation of the name* is the next one provided with examples. In this case, too, we are given four enthymemes with their maxims.

(1) A lover of wisdom is running; therefore, a philosopher is running.
(2) A philosopher is running; therefore, a lover of wisdom is running.
(3) A lover of wisdom does not envy; therefore, a philosopher does not envy.
(4) A philosopher does not envy; therefore, a lover of wisdom does not envy. [p. 62]

(1′) Whatever is predicated of the explanation is also predicated of what is explained.[35]

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[31] *"quicquid predicatur de diffinito, et de diffinitione."*
[32] *"de quocumque predicatur diffinitum, et diffinitio."*
[33] *"quicquid removetur a diffinito, et a diffinitione."*
[34] *"a quocumque removetur diffinitum, et diffinitio."*
[35] *"quicquid predicatur de interpretatione, et de interpretato."*

(2′) Whatever the explanation is predicated of, that which is explained is also predicated of.[36]
(3′) Whatever is removed from the explanation is also removed from what is explained.[37]
(4′) Whatever the explanation is removed from, that which is explained is also removed from.[38] [Ibid.]

In all four, *lover of wisdom* is the middle term, and *philosopher* is the term taken only once in the enthymeme. For the first two enthymemes, the missing premiss is 'Every lover of wisdom is a philosopher'; and the enthymemes reduce to *Disamis* and *Darii*, as in the Topic *from definition* and the Topic *from the definitum*. The missing premiss in the second two enthymemes is 'Every philosopher is a lover of wisdom'; and the appropriate syllogisms are *Celarent* and *Baroco*.

One enthymeme is given for the Topic *from genus* (that is, from the relationship of the genus to the species): "A stone is not an animal; therefore, a stone is not a man" (p. 63.16–18); and two for the Topic *from species* (the relationship of the species to the genus): (1) "a man is running; therefore, an animal is running"; and (2) "Socrates is a man; therefore, Socrates is an animal" (p. 64.1–10). The missing premiss for all three is 'Every man is an animal'; and the appropriate syllogisms are *Camestres*, *Disamis*, and *Darii* respectively.

In every one of the enthymemes considered above, the Topic is a relationship between the things referred to by the middle term of the enthymeme and one of the extremes—in every case, the extreme taken only once in the enthymeme. When the middle and the extreme taken only once are used to make a universal premiss, according to Peter's method for reducing enthymemes to syllogisms, the resulting premiss presents an instance of the relationship that is the Differentia, or some part of that relationship. As we have seen, Peter holds that the function of the Differentiae is to confirm arguments and that they do so by providing a middle or intermediate. We might be inclined to think that the middle provided must be a middle term; but an enthymeme already has a middle term and so cannot be provided with, or confirmed by the addition of, a middle term. What does depend on the Differentiae is not a middle term, it seems, but rather a premiss

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36. *"de quocumque predicatur interpretatio, et interpretatum."*
37. *"quicquid removetur ab interpretatione, et ab interpretato."*
38. *"a quocumque removetur interpretatio, et interpretatum."*

that is based on the relationship that is the Differentia or some part of the relationship. That premiss, made as Peter says the missing premiss for an enthymeme should be made, turns the enthymeme into a valid syllogism and by doing so confirms the inference made in the enthymeme. It seems, then, that the Differentiae provide missing premisses for enthymemes and that Peter's method of the Topics is a method for reducing enthymemes to syllogisms. And the Differentiae do provide a middle as Peter's account requires, not, however, by providing a "middle" proposition (middle in the sense that it is between the premiss and the conclusion of the enthymeme), but instead by providing a bridge between the lone premiss and the conclusion of the enthymeme, a link that validates the passage from premiss to conclusion.

In William of Sherwood's treatment of those Topics we have been considering in Peter's account, we find explicit the procedure that seems implicit in Peter. William, too, gives enthymemes as examples for Topics, and he reduces almost all his enthymemes to syllogisms. Two of his enthymemes, those serving as examples for the Topic *from species*[39] are the same as Peter's. William reduces them to syllogisms in the way I suggested Peter's enthymemes ought to be reduced. He leaves the enthymeme's propositions indefinite or singular, and he adds a universal premiss taken from the Differentia. As I did with Peter's enthymemes, he takes the indefinite or singular propositions as particulars; and he claims that the enthymemes are reduced to *Disamis* and *Darii* respectively, the same two moods that Peter's method for reducing enthymemes yields for these examples.[40]

We have considered in detail, however, only the first five Topics in Peter's treatise on the Topics. The sixth is the Topic *from an integral whole,* the relationship of the integral whole to its part. One enthymeme is given for this Topic: "A house exists; therefore, a wall exists" (p. 64.12–17). According to Peter's method for reducing enthymemes to syllogisms, we pick out the middle term—*house*—and the extreme taken only once—*wall*; and we combine these two terms into a universal proposition in keeping with the requirements of the syllogistic mood to get a valid syllogism. The premiss given in the enthymeme has the middle as subject, and so the appropriate syllogism cannot be in the second figure. The enthymeme's premiss is also the major premiss and should be read as particular (an I premiss), so the first figure is ruled out since it has no valid moods with major premisses in I. That leaves the third figure; the missing premiss must be a universal premiss with *house* as subject and *wall* as predicate; and the premiss will have to be affirmative because the conclusion is affirmative. If we proceed straightforwardly to produce the needed premiss as a universal affirmative with the middle as subject, we will reduce the enthymeme to a valid syllogism in *Disamis*. But the premiss added will have to be 'Every house is a wall'; and it is absurd to suppose that the enthymeme would be confirmed by such a premiss. Peter's method for reducing enthymemes to syllogisms apparently will not work in this case.

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[39] *Introductiones,* ed Grabmann, p. 60; trans. Kretzmann, p. 77.

[40] There are more possibilities for arguments than those generated by considering only syllogistic mood and the quality (affirmative or negative) of the propositions. The quantity (universal or particular) of the propositions can be varied, too, to provide different arguments in different moods of the syllogism. For instance, Peter's enthymemes for the Topic *from definition* reduce to syllogisms in *Disamis, Darii, Bocardo,* and *Camestres.* If enthymemes were generated by varying quantity as well, there would also be enthymemes that reduced to *Darapti, Barbara, Felapton,* and *Baroco* (corresponding to *Disamis, Darii, Bocardo,* and *Camestres*). And in a later development of the Topics, Ockham, for example, does take the quantity of an argument's propositions into account. See Otto Bird, "Topic and Consequence in Ockham's Logic," *Notre Dame Journal of Formal Logic,* 2 (1961), 69–70.

We could try to find the missing premiss by working directly from the Differentia since the Differentia is supposed to provide the argument and confirm the enthymeme. The Differentia is *from an integral whole*; that is, the enthymeme depends on a relationship between an integral whole and one of its parts. In this case, the integral whole is a house, and its part is a wall. So we might make this premiss from the Differentia: 'A wall is part of a house' or perhaps even the universal, 'Every wall is part of a house.' But we cannot use either of these propositions to reduce the enthymeme to a syllogism because in the context *part of a house* would be a fourth term. Apparently this enthymeme cannot be confirmed by adding a premiss according to Peter's method or directly from the Differentia. However the Topic is meant to confirm the argument here, it does not do so by reducing it to a syllogism.

For the Topic *from an integral whole*, William of Sherwood gives the same enthymeme as Peter; and he adds: "Arguments from an integral whole reduce to the third mood of the first figure [*Darii*], as follows: 'every part of the house exists (since the house exists), a wall is part of the house; therefore a wall exists.'"[41] As William gives it, the argument is

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[41] *"Et reducuntur argumenta iuxta hunc locum in tertium prime sic: quelibet pars domus, quia domus est, est. Paries est pars domus quia domus est [sic]. Ergo paries est"* (*Introductiones*, ed. Grabmann, p. 61.6–9; trans. Kretzmann, p. 79).

(1) A house exists.
(2) Therefore, every part of the house exists.
(3) A wall is part of the house.
(4) Therefore, a wall exists.

The second, third, and fourth steps constitute the syllogism in *Darii*, and the enthymeme's premiss is not one of the premisses in the syllogism. The syllogism's minor premiss, step (3) in the argument, is the premiss generated from the Differentia in question here, and it describes the relationship between wall and house, the particular whole and part in the enthymeme. The syllogism's major premiss, step (2), is the conclusion of an enthymeme very similar to the original enthymeme 'A house exists; therefore, a wall exists.' The maxim William gives for this Differentia is "What goes together with an [integral] whole in respect of proportional and perceptible parts (*secundum partes proportionales et notabiles*) goes together with a part."[42] And the inference from step (1) to step (2) in the argument above seems to depend on this maxim, which attributes certain predicates of an integral whole to any and every part of that whole. The inference from (1) to (2) seems to go like this:

(A) What goes together with an integral whole in respect of proportional and perceptible parts goes together with every part of that whole.
(B) Every house is an integral whole.
(C) Existence goes together with some house in respect of proportional and perceptible parts.
(D) Therefore, existence goes together with every part of that house.

Steps (C) and (D) are equivalent to steps (1)[43] and (2) in William's argument; (B) is the premise related to the Differentia; and (A) is the Differentia's maxim.

So in the argument William provides to show that the enthymeme for this Differentia can be reduced to *Darii*, one premiss of the syllogism in *Darii* comes from the Differentia (the relationship involved in the enthymeme). The other premiss is derived from the enthymeme's premiss (premiss C above), a premiss related to the Differentia (premiss B above), and the maxim for the enthymeme (premiss A above). The valid inferring of the conclusion depends on the enthymeme's premiss, the Differentia, and the maxim.

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[42] Ibid., ed. Grabmann, p. 60.32–33; trans. Kretzmann, pp. 78–79.

[43] Except, of course, for the qualification about proportional and perceptible parts, which seems to be taken as understood in (1).

The Topic *from an integral whole* is typical of most of the remaining Topics in Peter's treatise. Take, for example, the Topic *from a material cause*. One of the enthymemes for that Topic is 'There is no iron; therefore, there are no iron weapons,' or more conveniently, for present purposes, 'Iron is not; therefore, iron weapons are not' (68.4–5). The enthymeme's premiss is the major premiss and *iron* is the middle term; so the appropriate syllogism for this enthymeme must be a first- or third-figure syllogism in OAO. The only combination that gives a valid syllogism is the third-figure syllogism *Bocardo*; but that mood requires the blatantly false premiss 'Everything that is iron is iron weapons.' The proposition describing the relationship that is the Differentia here would have to be something like 'Iron is the matter (or material cause) of iron weapons'; such a proposition would introduce a fourth term if it were added to the enthymeme to produce a syllogism.

William of Sherwood gives a similar enthymeme for this Topic: "The Moors do not have iron; therefore they do not have iron weapons."[44] And he says the enthymeme is to be reduced to *Ferio* in this way: "No people who do not have iron are people who have iron weapons, the Moors are people who do not have iron; therefore the Moors are not people who have iron weapons."[45] The syllogism's minor premiss is the premiss in the enthymeme; the major premiss, however, seems to depend on or be drawn from the maxim for this Differentia: "Where the matter is lacking, what depends on that matter is lacking."[46] That maxim and a proposition drawn from the Differentia stating that iron is the matter of iron weapons yield the conclusion that all people who lack iron lack iron weapons and so also that no people who lack iron are people who have iron weapons, which is the major premiss of William's syllogism.

In much the same way, the maxims and Differentiae in Peter's treatise can be combined to confirm arguments, even for the arguments of topics that can be confirmed by reduction to syllogisms. For example, the Topic *from definition* has as its first enthymeme 'A mortal rational animal is running; therefore, a man is running' and the corresponding maxim "Whatever is predicated of the definition is predicated also of the *definitum* (the thing defined)" (p. 60). The enthymeme, as we saw above, can be confirmed by reducing it to the third-figure syllogism *Disamis*, adding a premiss describing the relationship of the Differentia. But it can also be confirmed without reduction to a syllogistic mood, by using the maxim and the Differentia:

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[44] *Introductiones*, ed. Grabmann, p. 63.29–30; trans. Kretzmann, p. 85.

[45] Ibid., ed. Grabmann, p. 63.32–34; trans. Kretzmann, p. 85.

[46] Ibid., ed. Grabmann, p. 63.30–31; trans. Kretzmann, p. 85.

(1) Whatever is predicated of the definition is predicated of the *definitum*.
(2) Mortal rational animal is the definition of the *definitum* man.
(3) Running is predicated of a mortal rational animal.
(4) Therefore, running is predicated also of man.

The first premiss is the maxim; the second is the premiss drawn from the relationship in the Differentia; and (3) and (4) are equivalent to the premiss and conclusion of the original enthymeme.

Or, for another example, the Topic *from a quantitative whole* has as its first enthymeme "Every man is running; therefore, Socrates is running"; and the corresponding maxim is "Whatever is predicated of a quantitative whole is also predicated of any part of that whole" (pp. 64.24–65.5). If we take this as the premiss from the Differentia: 'Every man is the quantitative whole of which Socrates is a part,' then we can make a valid argument that yields the enthymeme's conclusion as we did above, from the premiss drawn from the Differentia, the maxim, and the premiss in the enthymeme.

Peter's enthymemes work, then, because there is a certain relationship between what is signified by the middle term and what is signified by one of the extreme terms (namely, the relationship spelled out in the Differentia) and because certain inferences are valid given that relationship (those falling under the maxims for a Differentia). Theoretically, a maxim is a self-evidently true generalization;[47] and so the inference in the enthymeme is shown to be valid once the enthymeme has, with the help of the Differentia, been shown to fall under the generalization that is the maxim. And it should be clear now what the middle is that the Differentia provides to confirm arguments: it is the relationship that holds between the middle term and one of the extremes in the enthymeme, on the basis of which the maxim can be applied. So in the first enthymeme for the Topic *from definition*—"A mortal rational animal is running; therefore, a man is running"—the relationship between the middle *mortal rational animal* and the extreme *man* is spelled out in the Differentia *from definition*. Given this relationship, those inferences that fall under the maxim for this enthymeme are valid. The maxim is "Whatever is predicated of the definition is predicated also of the *definitum*"; applied to the enthymeme, it validates the passage from premiss to conclusion, and it can be applied to the enthymeme because the middle and extreme have the relationship of definition to *definitum,* which is the Differentia for this example. So the enthymematic argument is "confirmed," as Peter says it is, by the twofold Topic consisting in the Differentia and maxim for this argument.

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[47] See Peter of Spain's *Tractatus*, ed. de Rijk, p. 59.

Terminist Theory of Topics

In his chapter on the Topics, Peter gives twenty-five Differentiae and fifty-seven maxims; these are meant to cover all the kinds of Topical enthymemes which are thus reducible to dialectical syllogisms.[48] But this special method for coping with a special group of enthymemes is something of an odd excrescence on the logical theory of the terminists. First, Topical arguments are taken to be enthymemes, which are simply incomplete syllogisms, and the syllogism is taken as the foundation for and the guarantor of valid inferences; but in practice the validity of a Topical argument is shown and confirmed *not* by reducing it to a syllogism but by adducing for it a Differentia and a maxim. Second, no reason is given to explain why just these kinds of enthymemes can be confirmed without reduction to syllogism or why just twenty-five relationships indicated by the Differentiae should confirm arguments. And third, all Topical arguments are said to be dialectical, but the reasons why Topical enthymemes should always reduce only to dialectical and never to demonstrative syllogisms are obscure. That the first of these perplexities, at least, was something of an embarrassment to the terminists themselves can be seen most clearly in William of Sherwood's case. He treats Topical confirmation of enthymemes as if it were only an abbreviated alternative to real confirmation by reduction to syllogisms.[49] For many of the Topics he gives a Topical confirmation of a particular enthymeme and then immediately appends a syllogistic reduction, which often appears labored and contrived. For example, William reduces the enthymeme 'Socrates is not running; therefore he is not running well' to this argument, which he claims is a syllogism in *Ferio*: 'Not running is Socrates, running well is running; therefore not running well is Socrates.'[50]

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[48] The numbers depend on what is counted as *one* Differentia or *one* maxim. For instance, I have counted the Topic *from definition* and *from the definitum* as one Topic, and I have counted all four varieties of opposites as one Topic *from opposites*.

[49] Cf. also Roger Bacon, *Sumule Dialectices*, ed. Robert Steele (Oxford: Clarendon Press, 1940) p. 315.7–13.

In the work of the terminists there are occasional hints of metaphysical theories which might go some way toward resolving these perplexities, but the hints are slight. Peter says, for example, that a good dialectical argument occurs when something is naturally suited to be proved in one way of knowing (either by means of the intellect or by means of the senses) and is proved by what is prior to it in that way (that is, either intellectually prior or prior in sense experience).[51] And Lambert says that the relationships indicated by the Differentiae are natural relationships between a term in the premiss of an enthymeme and a term in the conclusion. He explains the relationship of a Topic such as *from definition* by saying that a definition and its *definitum* are convertible terms because each expresses the whole substance of the other.[52] But the meagerness of such suggestions and the labored attempt to force Topical arguments into syllogistic moods indicate that the terminists took up the Topics as a part of logic inherited from antiquity without being altogether sure, and perhaps without being much concerned, about the way in which the Topics fit into the rest of their logical theory.

Metaphysical Foundations for Theories of Topics

The metaphysical theory suggested in the terminists can be found more fully developed in other thirteenth-century logicians, particularly in the modists but also, for example, in Robert Kilwardby. Kilwardby takes the following view of logic, not uncommon in the thirteenth century. The subject of logic is reasoning, and all reasoning derives its force from the syllogism and is reducible to the syllogism.[53] A syllogism has both form and matter; the form consists in the arrangement of the three terms comprised in two premisses according to the various syllogistic moods and figures, and the matter is the necessity or probability of the premisses (which depends on the actual terms employed in the premisses).[54] Both dialectical and demonstrative arguments are syllogisms. The two sorts of arguments do not differ from each other with respect to the form of the syllogism but only with respect to its matter; the matter of demonstrative syllogisms consists in necessary premisses, that of dialectical syllogisms in probable premisses.[55] Furthermore, a demonstrative syllogism takes as its middle term only the cause or the definition of one of the terms in the conclusion, but a dialectical syllogism uses a great variety of middle terms. Although the Topics *from definition* and *from cause* may produce a dialectical syllogism with a cause or definition as middle term, these middle terms are not the same in dialectical and demonstrative syllogisms because they are used in dialectic only insofar as they are considered probable and contingently related to a term in the conclusion, while in demonstration they are always essentially and necessarily related to a term in the conclusion. Consequently, a dialectical syllogism can produce only opinion, while a demonstrative one produces knowledge;[56] and dialectical syllogisms, unlike demonstrative ones, depend on Topics to confirm them.[57] The metaphysical theory Kilwardby gives to support the status and function of the Topics in this account is only briefly sketched out in his work. Individual things have certain common characteristics (*communes rationes*), which we can in thought abstract from them—for example, whole, part, genus, species, and similars—and the Topics are drawn from these common characteristics of things.[58]

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[50] William of Sherwood, *Introductiones*, ed. Grabmann, p. 63; trans. Kretzmann, p. 83.

[51] Peter of Spain, *Tractatus*, ed. de Rijk, p. 169.1–4.

[52] Lambert of Auxerre, *Logica*, ed. Alessio, pp. 123–124.

[53] Kilwardby, *De ortu scientiarum*, ed. A. G. Judy (Auctores Britannici Medii Aevi, 4), (London: The British Academy and The Pontifical Institute of Mediaeval Studies, 1976) LIII.523.

A more fully developed metaphysical theory supporting the status and function of Topics can be found in Boethius of Dacia. According to him, things have certain modes of being from which common concepts (*intentiones communes*) are drawn. For example, a thing may have a mode of being according to which it can be divided by several differentiae into various species. From this mode of being, the common concept of genus is drawn;[59] and from the common concepts, the Topics are drawn.[60] Common concepts are relatives (*respectivae*) because they are concepts not of a thing considered absolutely and by itself but of a thing considered in relation to something else. A thing is thought of as a genus, for instance, only when considered in relation to the things that are its species. Consequently, the Topics, which are based on common concepts, are also relatives and consist in the relation of one thing to another. Hence, a dialectical argument, which is confirmed by a Topic, depends on a relationship.[61]

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[54] Ibid., LIII.500–502.

[55] Ibid., LIII.503 and 506. For discussion of this view of Kilwardby's and comparison with other thirteenth-century views, see Pinborg, "Topik und Syllogistik," pp. 164–174, and N. J. Green-Pedersen, "Discussions about the Status of the Loci Dialectici in Works from the Middle of the Thirteenth Century," *Cahiers de l'Institut du Moyen-âge grec et latin*, 20 (1977), 55–60.

[56] Kilwardby, *De ortu scientiarum*, ed. Judy, LIII.557, 558, and 561.

[57] Cf. Ivo Thomas, "Maxims in Kilwardby," *Dominican Studies*, 7 (1954), 132–133, and "Kilwardby on Conversion," *Dominican Studies*, 6 (1953), 56–76; and Pinborg, "Topik und Syllogistik," p. 167. Kilwardby's commentary was printed in Venice, 1516, under the name of Aegidius Romanus; and this edition is available in a 1968 Minerva reprint.

[58] Kilwardby, *De ortu scientiarum*, ed. Judy, XLVIII.454 and LIII.498.

Because the common concepts are relatives, however, they are only accidents[62] of the things of which they are concepts, and not part of their substance.[63] And apparently because a common concept is only accidentally related to the thing of which it is a concept, the Topic drawn from it is not a *cause* of the conclusion of a dialectical syllogism. But a Topic is a *sign* of various dialectical consequences,[64] because (since it is founded on a relative concept of a thing) it is a sign of a thing's following from something else or of something else's following from that thing. For example, "this thing which is signified by the word 'color', by means of the relation which it has to the thing which is signified by the word 'whiteness', has the characteristic (*ratio*) of genus and the Topical relationship of genus to species."[65] A dialectical inference such as 'Socrates is a man; therefore Socrates is an animal' holds by means of the Topical relationship of species to genus. It is a good inference because of the nature of the *things* signified by the words 'man' and 'animal': *man* includes *animal* in its substance, name, and definition, so that whatever 'man' is predicated of, 'animal' is predicated of also. The *Topical relationship* of species to genus is not the *cause* of this connection between man and animal, and so it is not a cause of the validity of the inference either; but it is a *sign* of both the connection between the things and the validity of the inference. All dialectical inferences (considered as such) hold by means of such signs, rather than by means of causes of the conclusions; and so dialectical arguments, in contrast with demonstrative ones, produce only opinion, not knowledge.[66]

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[59] Second intentions, which are similar to but not identical with Boethius's common concepts (*communes intentiones*), receive a great deal of attention in connection with the Topics. See, for example, Simon of Faversham's commentary on Peter of Spain's *Tractatus*, in de Rijk, "On the Genuine Text," pp. 94–95; Buridan's commentary on the same work (N. J. Green-Pedersen, "The Summulae of John Buridan, Tractatus VI De Locis," in *The Logic of John Buridan*, ed. Jan Pinborg [Copenhagen: Museum Tusculanum, 1976], p. 137); and Albert of Saxony, *Perutilis logica*, Venice, 1522, f.33ra. They receive especially detailed treatment by Radulphus Brito; cf., e.g., Radulphus Brito, "Commentary on Boethius' De differentiis topicis," ed. N. J. Green-Pedersen, *Cahiers de l'Institut du Moyen-âge grec et latin* (CIMAGL), 26 (1978), pp. 1–92, and "The Sophism 'Omnis homo est omnis homo,'" ed. N. J. Green-Pedersen and Jan Pinborg, CIMAGL, 26 (1978) 100–101, and "Aliquis homo est species," in Pinborg, "Radulphus Brito's Sophism on Second Intentions," *Vivarium*, 13 (1975), 119–152. See also Green-Pedersen, "Discussions about the Status," pp. 51–55 and 58–59; and Pinborg, "Zum Begriff der Intentio Secunda, Radulphus Brito, Hervaeus Natalis, und Petrus Aureoli in Diskussion," CIMAGL, 13 (1974), 49–59, esp. p. 54.

[60] For the connection between Topics and modes of being and the properties of things, see also Radulphus Brito, "The Sophism 'Omnis homo est omnis homo,'" pp. 93ff., and "Commentary on Boethius' De differentiis topicis," pp. 58–59.

[61] Boethius of Dacia, *Quaestiones*, ed. Green-Pedersen and Pinborg, pp. 10–11; cf. also pp. 209–210. For the difference between a common concept and a Topic, see pp. 217–218.

[62] Relatives are, of course, one of the nine categories that are accidents with respect to the subjects they are predicated of.

[63] Boethius of Dacia, *Quaestiones*, ed. Green-Pedersen and Pinborg, p. 14.

[64] Ibid., p. 15.

Conclusion

Seen apart from such metaphysical theories, the logical strand of the accounts of Topics found in Kilwardby and Boethius of Dacia and in the terminists represents a kind of Aristotelianism[67] in the tradition of logic, characterized by an emphasis on the categorical syllogism as the foundation of all inference, a sharp distinction between dialectic and demonstration, and the relegation of dialectical or Topical arguments to a secondary epistemological status.[68] The transformation of the Topics into the theories of consequences or conditional inferences in the fourteenth century seems to have been accomplished by the convergence of two lines of development: a gradual erosion of this Aristotelianism and an increasing concentration on the nature of the rules for consequences. In succeeding essays I will concentrate on the first line of development, the change in attitudes toward dialectic and the Topics, but I will also say something about the rise of interest in the consequences. Plainly, the two lines of development are not unconnected. As long as the categorical syllogism is conceived of as the ultimate guarantor of validity, interest in nonsyllogistic inferences will focus on attempts to reduce them to syllogisms; and study of nonsyllogistic inferences will not be a central concern as long as all knowledge is thought to be produced only by demonstrative syllogisms. When the distinction between dialectic and demonstration weakens and the special status of the categorical syllogism is undermined, interest in consequences is free to develop.

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[65] Ibid., p. 28: "*haec res, quae significatur per hoc nomen 'color', per relationem, quam habet ad rem, quae significatur per hoc nomen 'albedo', habet rationem generis et habitudinem localem generis ad speciem.*"

[66] Ibid., pp. 20–23.

[67] By 'Aristotelianism' I mean to suggest only that their views were heavily influenced by their understanding of Aristotle's writings, not that these views represent Aristotle's own theories, which are very unlike anything that can be found in scholastic treatments of the Topics.

[68] See Bacon, *Sumule Dialectices*, ed. Steele, pp. 303–305; Simon of Faversham's commentary on Peter of Spain, in de Rijk, "On the Genuine Text," p. 80; Boethius of Dacia, *Quaestiones*, ed. Green-Pedersen and Pinborg, pp. 30–39, esp. pp. 32.55–33.59; and Simon of Faversham, *Quaestiones super librum Elenchorum*, ed. S. Ebbesen, F. del Punta, T. Izbicki, J. Longeway, E. Serene, and E. Stump (Toronto: Pontifical Institute Press, 1984), Question 6, "*Utrum sit ponere syllogismum peccantem in materia absque hoc quod peccet in forma*" (pp. 114–115), and Question 30, "*Utrum locus sophisticus accidat in demonstrativis*" (pp. 178–181).

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Consequences and the Decline of Aristotelianism in Formal Logic

Our understanding of the philosophical developments in logic in the second half of the thirteenth century is not very far advanced. Much of the most basic scholarship—the preparation of reliable texts, the dating of works and even the identification of authors, the investigation of sources and lines of influence—remains to be done for this period. (I do not mean to suggest that such research has been adequately completed for all other periods of medieval philosophy, only that the second half of the thirteenth century is still especially obscure, particularly as regards the development of logic.) We know that during this time there was a great philosophical ferment, which eventuated in radical changes in various parts of scholastic logic: but we have only a hazy idea of the men and the developments responsible for those changes. In this essay, I hope to make two contributions toward mapping the territory of formal logic in the second half of the thirteenth century. First I will make some positive suggestions about the general lines of development in formal logic during this period; and second I will indicate what still needs to be accounted for by considering a very early treatise on consequences, namely, that of Walter Burley. Bacon's *Sumule* written around 1250 and Burley's treatise on consequences from the turn of the century mark the poles between which the developments in formal logic in the later thirteenth century took place. A careful consideration of Burley's treatise, then, will help us understand something of the nature and extent of the changes in formal logic in the period preceding it.

The Decline in the Status of the Syllogism

Work on Topics and syllogisms from the first half of the thirteenth century is characterized by Aristotelianism, but it is also marked by a

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This essay is an extension and development of "Topics: Their Development and Absorption into the Consequences," published in *The Cambridge History of Later Medieval Philosophy*, ed. Norman Kretzmann et al. (Cambridge: Cambridge University Press, 1982), pp. 273–299.

twofold development which leads to the flowering of scholastic logic in the fourteenth-century theories of consequences: first, a gradual eroding of such Aristotelianism in the attitudes toward Topics and syllogisms: and, second, in an increasing concentration on the nature of and rules for consequences. The undermining of Aristotelianism in the treatment of the Topics can itself be seen as a two-pronged development: a growing inclination to see all syllogisms as dependent on Topics (which looks like but is not a return to early twelfth-century views) and a tendency to consider not only demonstrative but also Topical or dialectical arguments as necessary. Both developments at least blur the distinction between dialectic and demonstration, and the first drastically undermines the special status of the syllogism as well.

A sign of the coming decline in the status of the syllogism can be found in the work of the terminist logicians themselves, in their account of the Topic *from a quantitative whole*,[1] which they take in a way not intended by the earlier Topical tradition.[2] Lambert of Auxerre's account is the most suggestive.[3] On his view a quantitative whole is a common term (such as 'man') with a universal sign (such as 'every'), and the Topical relationship is that of a quantitative whole to its part. It validates two sorts of inferences, represented by the following examples: 'Every man is running: therefore Socrates is running' and 'No man is running: therefore Socrates is not running.' The description of the Topic and the examples given are reminiscent of first-figure syllogisms in *Barbara* and *Celarent*: and the maxims for this Topic—'Whatever is posited of a quantitative whole is posited also of its part' and 'Whatever is denied of a quantitative whole is denied also of its part'—resemble the principles *dici de omni* and *dici de nullo*, associated with the foundation of the syllogism. Discussion of this Topic must have provoked inquiry into the relation between this Topic and the principles *dici de omni et nullo* and given impetus to the notion that syllogisms are Topically dependent, as will be more apparent after a brief discussion of *dici de omni et nullo*.

The connection between the principles *dici de omni et nullo* and the syllogism is variously expressed by thirteenth- and fourteenth-century logicians. For instance, Roger Bacon says simply that every syllogism depends on (*decurrit super*) these principles.[4] Siger of Courtrai and the Pseudo-Scotus claim that every first-figure syllogism (to which all the other syllogistic moods can be reduced) holds by means of these principles:[5] by this, the Pseudo-Scotus apparently means that the validity of the syllogism generally depends on these principles. Giles of Rome goes so far as to say that the principles *dici de omni et nullo* prove the form of the syllogism and include within themselves the syllogistic order.[6] These views are all consistent with the scholastic conception of these principles. The abbreviated phrase *'dici de omni'* is generally said to mean that in a universal proposition nothing is to be subsumed under the subject which is not also subsumed under the predicate,[7] so that this principle amounts to a description or explanation of the nature of a universal proposition. Its connection with the syllogism derives from its connection with the first-figure syllogism in *Barbara*. This syllogistic mood has a universal affirmative proposition for its major premiss ('Every B is C'), and the minor premiss ('Every A is B') in effect indicates that a certain group is to be subsumed under the subject of the major premiss. By the nature of a universal proposition, that is, by the principle *dici de omni*, the conclusion of this mood ('Every A is C') follows: every B is C (the major premiss): a universal proposition is one in which nothing is to be subsumed under the subject which is not subsumed under the predicate (*dici de omni*): every A is subsumed under the subject of the universal proposition 'Every B is C' (minor premiss): so every A is also subsumed under the predicate of that universal proposition, and hence every A is C (conclusion). So the validity of the first-figure syllogism in *Barbara* appears to be dependent on the nature of a universal (affirmative) proposition, expressed in the principle *dici de omni*; and, *mutatis mutandis*, the same things can be said about the principle *dici de nullo* and the other fundamental first-figure syllogism, *Celarent*.

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[1] Peter of Spain, *Tractatus*, ed. L. M. de Rijk (Assen: Van Gorcum, 1972), pp. 64–65; William of Sherwood, *Introductiones in logicam*, ed. Martin Grabmann (Sitzungsberichte der Bayerischen Akademie der Wissenschaften, Philosophisch-historische Abteilung, Heft 10, 1937), p. 61; Lambert of Auxerre, *Logica*, ed. Franco Alessio (Florence: La Nuova Italia Editrice, 1971), p. 127.

[2] Cf., e.g., Boethius, *De topicis differentiis* 1189B–C.

[3] See also Roger Bacon, *Sumule dialectices*, ed. Robert Steele, in *Opera hactenus inedita Rogeri Baconi*, fasc. 15 (Oxford: Clarendon Press, 1940), p. 319.

This explanation should clarify the resemblance between the principles *dici de omni et nullo* and the Topic *from the whole*.[8] The subject of the minor premiss in a first-figure syllogism in *Barbara* is included in the subject of the universal major premiss; and so it appears that the subject of the minor premiss is a quantitative part of the subject in the major premiss, which is its quantitative whole. It is reasonable, then, to ask whether the first-figure syllogism in *Barbara* is dependent on a Topical relationship between its terms and whether the principles *dici de omni et nullo* are equivalent to the maxims for this Topic.

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[4] Ibid., p. 290.

[5] Siger of Courtrai, *Ars Priorum* in *Les Oeuvres de Siger de Courtrai*, ed. G. Wallerand (Les Philosophes Belges. Textes et Etudes), (Louvain: Louvain Institut Superieur de Philosophie, 1913), pp. 10 and 22; Pseudo-Scotus, *Super librum I Priorum*, in John Duns Scotus, *Opera omnia*, ed. L. Wadding (Paris: Vives, 1891–95), vol. I qu. VII, p. 97.

[6] Giles of Rome, *In "Rhetoricam Aristotelis,"* in Jan Pinborg, *Logik und Semantik im Mittelalter* (Stuttgart-Bad Cannstatt: Frommann-Holzboog, 1972), pp. 200–203.

[7] Cf., e.g., Peter of Spain, *Tractatus*, ed. de Rijk, p. 43.6–12.

That the scholastics did ask these questions and frequently enough answered them affirmatively is evident from a number of texts. An anonymous commentary on the *Prior Analytics* from around 1270 attacks the view that every syllogism considered apart from any particular material proves its conclusion, and in doing so it has to argue against the objection that every syllogism holds in virtue of the Topical relationship *from a quantitative whole*, whose maxims are in every syllogism constituted by the principles *dici de omni et nullo*, and that every Topical relationship proves something.[9] Radulphus Brito in his commentary on Boethius's *De topicis differentiis* devotes a question to the issue whether there is such a Topic as *from a quantitative whole* and if so, whether it is a good one. He answers both questions affirmatively. On his view, this Topic is good whenever a predicate is more known to inhere in a term taken universally than in any of the supposita for that term, and he identifies predicates (per se) in the first and second moods of the syllogism as of this type.[10] Simon of Faversham, commenting on the *Sophistici elenchi*, specifies as one of the general conditions for all syllogisms that one of the two premisses is related to the other as whole to part.[11] And in an anonymous commentary on the *Sophistici elenchi* from the 1270s it is said, "Every syllogism holds by means of a Topical relationship, for every syllogism holds by means of the Topic *from a quantitative whole to its part,* because the minor is a part of the major."[12]

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[8] The connection may have been made easier by Aristotle's identification of *dici de omni* and being in the whole (*esse in toto*), *Prior Analytics* 246a6-30 and Boethius's *De syll. cat.* 809C10–810C4. Cf. Lambert of Auxerre, *Logica*, ed. F. Alessio, pp. 112–113.

[9] Jan Pinborg, "Topik und Syllogistik im Mittelalter," in *Sapienter Ordinare, Festgabe fuer Erich Kleineidam*, ed. F. Hoffman, L. Scheffczyk, and K. Feiereis (Leipzig: St. Benno Verlag, 1969), pp. 166–167.

[10] Radulphus Brito, "Commentary on Boethius' De differentiis topicis," ed. N. J. Green-Pedersen, *Cahiers de l'Institut du Moyen-âge Grec et Latin*, 26 (1978), 47: "*in toto in quantitate universalis distribuitur in omnia sua inferiora, et quodlibet eius suppositum suscipit eius praedicationem.*"

[11] Simon of Faversham, *Quaestiones super librum Elenchorum*, ed. S. Ebbesen, F. del Punta, T. Izbicki, J. Longeway, E. Serene, and E. Stump (Toronto: Pontifical Institute Press, 1984), Question 5: "*Utrum syllogismus peccans in forma sit syllogismus*" (pp. 111–113).

What results from such considerations, and no doubt from other, very different ones as well, is the view that all syllogisms are dependent on the Topics for their validity. In addition to its implicit or explicit occurrence in the passages just discussed, this view or one very similar can be found, for example, in Boethius of Dacia's commentary on Aristotle's *Topics,* where he apparently accepts the view that there is a Topical relationship in every demonstrative syllogism,[13] or in Simon of Faversham's commentary on the *Sophistici elenchi,* in which he says that every good consequence is founded on a Topical relationship, and the ensuing explanation strongly suggests that syllogisms in general are included under the heading of 'consequence.'[14]

The Acceptance of Topical Inferences as Necessary

A second change in the treatment of the Topics, which is complementary to the view of syllogisms as Topically dependent, is the increased acceptance of the claim that Topical inferences are necessary and not just readily believable (*probabile*). This claim is not unconnected to metaphysical theories about the ontological status of Topics and their relations to real things, and it is well represented in Boethius of Dacia. Ostensibly he retains the traditional view that dialectical inferences produce only readily believable conclusions and opinion rather than knowledge, but he makes a subtle distinction which in effect demolishes or at least undermines the traditional view. In the case of the dialectical argument 'Socrates is a man; therefore Socrates is an animal,' the *things* signified by 'man' and 'animal' are the causes of the inference. Because *man* includes *animal* in its substance, name, and definition, the connection between these two things is necessary, and consequently the argument is necessary, too. But considered in this way, in respect of its relation to a necessary connection between two things, the argument is not dialectical. If we think of the argument as based on the Topical relation of species to genus, however, it is a dialectical argument; and in that case, its conclusion is only probable. And similarly in other cases: the very same argument considered in respect of its relation to the natures of things, which are the causes of consequences, is a necessary argument: considered as based on a Topical relationship, it is a dialectical argument and its conclusion is only readily believable.[15]

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[12] Sten Ebbesen, ed., *Incertorum auctorum Quaestiones super Sophisticos Elenchos* (Corpus Philosophorum Danicorum Medii Aevi, 7) (Copenhagen, G. E. C. Gad, 1977), pp. 34–35 (qu. 16, lines 21–23): "*Omnis syllogismus est tenens per habitudinem localem; omnis enim syllogismus tenet per locum a toto in quantitate ad partem suam, quia minor est pars maioris.*"

[13] Boethius of Dacia, *Quaestiones super librum Topicorum,* ed. N. J. Green-Pedersen and Jan Pinborg (Copenhagen: G. E. C. Gad, 1976), pp. 39–40.

[14] Simon of Faversham, *Quaestiones,* ed. Ebbesen et al., Question 32: "*Utrum ista consequentia sit bona 'omnis homo currit; ergo omnis homo currit.'*" (pp. 185–188).

Topical arguments are increasingly referred to as consequences in the thirteenth century. Use of the term *'consequentia'* to refer to dialectical inferences can be found, for example, in Kilwardby and Bacon,[16] and it is very evident in Radulphus Brito and Simon of Faversham.[17]

Discussions of Consequences

Apart from the commentaries on Aristotle's and Boethius's works on Topics,[18] there are three other places in thirteenth-century logic, relevant to the purposes of this essay, in which consequences are discussed.[19] The first is in the treatment of the syncategorematic word *'si.'* In their treatises on syncategorematic words, William of Sherwood and Peter of Spain include some detailed discussion of consequences in the section on *'si.'*[20] William distinguishes absolute and as-of-now (*ut nunc*) consequences and natural and accidental consequences. The first is a basic distinction occurring very frequently in fourteenth-century accounts of consequences, and something like the second can be found in Walter Burley's work.[21] William also discusses very briefly different sorts of difficult consequences, such as those involving exclusives and modal operators, the sorts of consequences typically discussed at length in the fourteenth century.

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[15] Boethius of Dacia, *Quaestiones*, ed. Green-Pedersen and Pinborg, pp. 20–23. Cf. also Radulphus Brito, "Commentary," ed. Green-Pedersen, pp. 58–60.

[16] Robert Kilwardby, *De ortu scientiarum*, ed. A. G. Judy (Auctores Britannici Medii Aevi, 4), (London: The British Academy and The Pontifical Institute of Mediaeval Studies, 1976), pp. 174 and 185; Bacon, *Sumule dialectices*, ed. Steele, p. 323.

[17] Cf., e.g., Radulphus Brito, "Commentary," ed. Green-Pedersen and Pinborg, pp. 25, 26, 28–29, 33, 40, and 42ff. Simon of Faversham, *Quaestiones*, ed. Ebbesen et al., Question 29: "*Utrum petitio principii sit locus sophisticus*" (pp. 174–178) and Question 32: "*Utrum ista consequentia sit bona 'omnis homo currit; ergo omnis homo currit'* " (pp. 185–188); also *Commentary on Peter of Spain's Tractatus* in L. M. de Rijk, "On the Genuine Text of Peter of Spain's *Summule logicales* II," *Vivarium*, 6 (1968), 98.

[18] Cf., e.g., Boethius of Dacia, *Quaestiones*, ed. Green-Pedersen and Pinborg, pp. 220ff., and Radulphus Brito, "Commentary," ed. Green-Pedersen, pp. 38ff.

[19] For a fuller discussion of medieval theories of syncategorematic words, see Norman Kretzmann, "Syncategoremata, exponibilia, sophismata," in *The Cambridge History of Later Medieval Philosophy*, ed. Norman Kretzmann et al. (Cambridge: Cambridge University Press, 1982). For a fuller discussion of the history of consequences in medieval logic, see Ivan Boh, "Consequences," in ibid., pp. 300–314.

[20] William of Sherwood, *Syncategoremata*, ed. J. R. O'Donnell, *Mediaeval Studies*, 3 (1941), 78–82; Peter of Spain, *Textus omnium tractatuum Petri Hispani* . . . (Cologne, 1489), ff.47rb–48rb.

[21] Walter Burley, *De puritate artis logicae tractatus longior, with a Revised Edition of the tractatus brevior*, ed. P. Boehner (St. Bonaventure, N.Y.: Franciscan Institute, 1955), p. 61.

Peter's basic division of consequences into simple and composite (a traditional distinction) can also be found in Burley's work,[22] and four of the six rules of consequences Peter discusses occur frequently in one form or another in fourteenth-century accounts of consequences. Two other rules of consequences which Peter considers and rejects—'From the impossible anything follows' and 'The necessary follows from anything'—are widely accepted in the fourteenth century. Many of the particular consequences Peter discusses in connection with the syncategorematic word *'si'* are standard Topical arguments, as he himself points out. In Burley's discussion of *'si,'* he says that since the rules for consequences have already been given in the section on consequences, there is not much left to be said about *'si.'*[23]

The second place in which consequences tend to be discussed at some length is in analyses of the fallacy of the consequent. As early as the twelfth-century treatises *Dialectica Monacensis*, *Fallacie Londinenses*, and *Fallacie Magistri Willelmi*,[24] there is some work on consequences in connection with this fallacy, for which *Fallacie Londinenses* makes use of the Topics *from a similar* and *from proportion*. Peter of Spain and Lambert of Auxerre in their discussions of this fallacy give detailed accounts of certain kinds of consequences, including Topical inferences, in which the fallacy of the consequent can or does occur.[25] Peter begins his account by describing basic sorts of consequences, in a discussion similar to that in his treatment of the syncategorematic word *'si.'* Some of the rules of consequences Peter and Lambert give in their discussions can also be found in fourteenth-century treatises on consequences; for example, Lambert's rule that an inference from a proposition having many causes of truth to one having only one of those causes of truth is fallacious is one of the ten basic rules of consequences in Burley's *Tractatus brevior*.[26]

Peter, Lambert, William of Sherwood, and Roger Bacon all give, in one form or another, Aristotle's explanation for the origin of the fallacy of the consequent: the fallacy of the consequent occurs when we are deceived and think that a consequence converts when it does not.[27] The same view is represented also in Simon of Faversham's commentary on the *Sophistici elenchi*, for example, which devotes three questions to detailed discussion of consequences and rules for consequences.[28] It is not unreasonable to suppose that this explanation of the origin of the fallacy gave impetus to the investigation of rules distinguishing valid from invalid consequences.

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[22] Ibid.

[23] Ibid., p. 248.

[24] L. M. de Rijk, *Logica Modernorum* (Assen: Van Gorcum, 1962–67), vol. II, pt. 2, pp. 588–592, 675–676, 699–700 respectively.

[25] Peter of Spain, *Tractatus*, ed. de Rijk, pp. 160–173, and Lambert of Auxerre, *Logica*, ed. F. Alessio, pp. 195–199.

[26] Lambert of Auxerre, *Logica*, ed. F. Alessio, p. 197; Burley, *De puritate*, ed. Boehner, p. 212.29–31.

Third, in commentaries on the *Prior Analytics* (and, to a lesser extent, I think, in commentaries on *De interpretatione*) we find significant developments in the logic of consequences. Concern about the logical status of conversion can be found, for example, in Albert the Great, Robert Kilwardby, Lambert of Auxerre, and texts associated with Boethius of Dacia.[29] A common response, found in one form or another in all these authors, is to say that conversion is an inference (sometimes, a consequence) but not an argument. The concern generated by the problem of conversion and the importance of this solution to it both stem from the fact that conversion is required to reduce second- and third-figure syllogisms to first-figure syllogisms, a reduction that constitutes their formal confirmation. When conversion is explicitly designated a consequence, the implication is that second- and third-figure syllogisms are at least partially dependent on certain sorts of consequences for their validity. This notion works together with the contemporaneous discussion of the principles *dici de omni et nullo* to undermine the primacy of the syllogism: second- and third-figure syllogisms depend on consequences because they are dependent on first-figure syllogisms and conversion (which is a kind of consequence): first-figure syllogisms depend on the principles *dici de omni et nullo*, which look very much like Topical maxims. In addition, Lambert adds, with some justice,[30] that reduction *per impossibile*, also used to reduce second- and third-figure syllogisms to those of the first figure, is equivalent to or dependent on (his views are not quite clear) the Topic *from division*.[31] In effect, such views shift the emphasis from the syllogism to consequences as the ultimate guarantors of validity, and they must have stimulated study of the nature and kinds of valid consequences. Detailed work on assertoric and modal consequences can be found in the treatments of conversion by Roger Bacon, Siger of Courtrai, Richard of Campsall, and the Pseudo-Scotus, for example.[32] In fact, Richard of Campsall's *Questiones super librum Priorum analeticorum* is devoted mostly to conversion and consequences. The logical culmination of such treatment of conversion can be seen, for instance, in Albert of Saxony's *Perutilis logica*, in which syllogism, as well as conversion, is among the various subjects contained within his account of consequences.[33]

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[27] *Soph. el.* 167b1–2; Peter of Spain, *Tractatus*, ed. de Rijk, p. 170.15–17; Lambert of Auxerre, *Logica*, ed. Alessio, p. 195; William of Sherwood, *Introductiones*, ed. Grabmann, p. 100; Bacon, *Sumule dialectices*, ed. Steele, p. 350.15–19. See also *Dialectica Monacensis* in de Rijk, *Logica Modernorum*, vol. II, pt. 2, p. 589.

[28] Simon of Faversham, *Quaestiones*, ed. Ebbesen et al., Questions 35–37: "*Utrum ubicumque est fallacia consequentis necesse sit consequentiam conversam bonam esse,*" "*Utrum arguendo a positione consequentis ad positionem antecedentis sit bona consequentia,*" and "*Utrum arguendo a destructione antecedentis ad destructionem consequentis sit bona consequentia*" (pp. 194–203).

[29] Cf. Pinborg, *Logik und Semantik*, pp. 86–87; Kilwardby's commentary on the *Prior Analytics* in Ivo Thomas, "Kilwardby on Conversion," *Dominican Studies*, 6 (1953), 65ff.; and Lambert of Auxerre, *Logica*, ed. Alessio, pp. 24ff.

[30] Cf. Boethius, *De topicis differentiis* 1193 A–C, and Eleonore Stump, *Boethius's De topicis differentiis* (Ithaca, N.Y.: Cornell University Press, 1978), p. 125, nn. 112 and 113.

Burley's Treatise *De consequentiis*

Burley's treatise on consequences was written in 1301, significantly earlier than the two versions of his *De puritate artis logicae*; and it is one of the earliest scholastic treatises on consequences we currently know of. Roger Bacon's treatise *Sumule dialectices* was written around 1250; and except that Bacon's chapter on syllogisms contains a lengthy discussion of conversion, his work on Topics and syllogisms belongs to the same camp as that of Peter of Spain in the first half of the thirteenth century. Burley's treatise on consequences, on the other hand, has plainly broken with the terminist tradition in formal logic. An examination of Burley's treatise, then, will show us the changes in formal logic which must have occurred in the preceding fifty years, at least in Oxford, and so an analysis of it will help us understand the developments in the second half of the thirteenth century and will point the way for further research.

Burley's treatise falls naturally into ten sections. After a short introduction stating that knowledge of the nature of consequences is helpful because they are commonly used in sophismata, the first section presents a series of general rules of consequences such as the following:

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[31] Lambert of Auxerre, *Logica*, ed. Alessio, pp. 138–139.

[32] Bacon, *Sumule dialectices*, ed. Steele, pp. 290–297; cf. also pp. 322–323; Siger of Courtrai, *Ars priorum*, ed. Wallerand; pp. 10–20; cf. also pp. 25ff; Richard of Campsall, *Questiones super librum Priorum Analeticorum*, in *The Works of Richard of Campsall*, ed. Edward A. Synan, vol. I (Toronto: Pontifical Institute of Mediaeval Studies, 1968), pp. 69ff.; Pseudo-Scotus, *Super librum*, ed. Wadding, qu. 10, pp. 103ff. Cf. also Robert Kilwardby's commentary on the *Prior Analytics* in Ivo Thomas, "Kilwardby on Conversion"; and Ivo Thomas, "Maxims in Kilwardby," *Dominican Studies*, 7 (1954), 129ff. As another example, de Rijk mentions Simon of Faversham's discussion of conversion in his commentary on Peter of Spain's *Tractatus* in de Rijk, "On the Genuine Text," p. 89.

[33] Albert of Saxony, *Perutilis logica* (Venice, 1522), ff.26raff.

(1) Whatever follows from the consequent follows from the antecedent.
(2) Whatever the antecedent follows from, the consequent also follows from.
(3) Whatever the opposite of the consequent follows from, the opposite of the antecedent also follows from.[34]

The second section deals with exclusives and consists in a presentation and brief discussion of this sort of rule:

(4) From an exclusive [proposition] to a universal [proposition] with the terms transposed and vice versa is a good consequence. For example: Only a man is an animal; therefore every animal is a man—and vice versa.
(5) From an exclusive to its prejacent [i.e., the exclusive proposition minus the exclusive term] is a good consequence. For example: Only a man is running; therefore a man is running.
(6) From a superior [in a single predicamental line of a Porphyrian tree] to an inferior with an exclusive expression is a fallacy of the consequent. For example: Only an animal is running; therefore only a man is running.[35]

There follow sections with analogous rules regarding exceptives and regarding mobility and immobility in inferences (dealing mostly with the effect of expressions such as 'differs' and 'is not the same as'). The fifth section looks as if its emphasis is the effect of considerations of supposition on inferences, but it ends with some very general rules of consequences, including these:

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[34] N. J. Green-Pedersen, "Walter Burley's De consequentiis. An Edition," *Franciscan Studies*, 40 (1980), 102–166. References to Burley's text are to the paragraph numbers of Green-Pedersen's edition: "*quicquid sequitur ad consequens, sequitur ad antecedens; . . . quicquid antecedit ad antecedens, antecedit ad consequens*" (par. 1). "*quicquid antecedit ad oppositum consequentis, antecedit ad oppositum antecedentis*" (par. 5). Green-Pedersen has edited two other early treatises on consequences, but they do not seem different enough in philosophical content from Burley's treatise to be taken into account here: see his "Two Early Anonymous Tracts on Consequences," *Cahiers de l'Institut du Moyen-âge Grec et Latin* 35 (1980), 1–28.

[35] "*ab exclusiva ad universalem de terminis transpositis et e contra est bona consequentia in terminis rectis. Sequitur enim 'tantum homo est animal, ergo omne animal est homo', et e converso*" (par. 32).

"*ab exclusiva ad suam praeiacentem est bona consequentia: unde sequitur 'tantum homo currit, ergo homo currit'* " (par. 33).

"*a superiori ad inferius cum dictione exclusiva est fallacia consequentis, sic arguendo 'tantum animal currit, ergo tantum homo currit'.*" (par. 43).

(7) From what is impossible anything follows.
(8) What is necessary follows from anything.[36]

Rules of consequences involving conversion and opposition, described as Aristotle's rules justifying consequences handed down in *De Int.* and the first Book of the *Prior Analytics*, constitute the following sixth section. After that comes a section devoted to syllogistic consequences, followed first by one on enthymematic consequences and then by one on inferences containing oblique terms, such as "A donkey belonging to each man is running; this man is a man; therefore a donkey belonging to this man is running."[37] The treatise concludes with another discussion of apparently randomly selected general rules, including an examination of some examples which seem to come from obligations or insolubles. For example, Burley considers cases involving the following propositions:

(i) Socrates sees only every man [who is] not seeing himself.
(ii) You know that you are a stone.
(iii) Socrates knows that he knows nothing; therefore Socrates knows something knowable.[38]

Many of the rules in this section belong to modal or tense logic:

(9) One or the other of a pair of contradictory propositions is compossible with any possible proposition.
(10) Every proposition which includes its opposite, such as, 'you know that you are a stone,' is impossible.
(11) Every true past tense proposition is necessary.[39]

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[36] "*ex impossibili sequitur quodlibet per locum a minori*" (par. 71); "*necessarium sequitur ad quodlibet per locum a minori*" (par. 72).

[37] "'*cuiuslibet hominis asinus currit, iste homo est homo, ergo istius hominis asinus currit*'" (par. 132).

[38] "'*Socrates videt tantum omnem hominem non videntem se*'" (par. 145).
"'*tu scis te esse lapidem*'" (par. 146).
"'*Socrates scit se nihil scire, ergo Socrates scit scibile*'" (par. 155).

[39] "*cuilibet propositioni possibili est altera contradictoriorum compossibile*" (par. 145).
"*omnis propositio includens opposita est impossibilis; sicut ista 'tu scis te esse lapidem*'" (par. 146).
"*omnis propositio vera de praeterito est necessaria*" (par. 148).

There is a considerable disparity in the amount of attention Burley devotes to the different sections of this treatise. Certain subjects are handled with dispatch. Those on the immobility created by terms such as 'differs' (section 4), on supposition (section 5), on conversion (section 6), and on syllogisms (section 7) are given very short shrift; and there is only slightly more attention to exclusives (section 2), exceptives (section 3), and oblique terms (section 9). In contrast, Burley devotes a disproportionately large part of the treatise to two sections: the eighth, on enthymematic consequences, which is by far the longest section of the treatise, and the last, which includes a consideration of modal and tense logic.

Given the historical background, we might expect to find in the section on enthymematic consequences an investigation of Topical inferences, but there is very little explicit mention of Topics anywhere in this treatise. The most notable examples occur in the justification of the two rules stating that from what is impossible anything follows and that what is necessary follows from anything. Consequences warranted by these rules are said to hold in virtue of the Topic *from a lesser*, the maximal proposition for which is 'If that which seems the less to inhere does inhere, then that which seems the more to inhere will inhere also.'[40] Except for cases involving inferences from a superior to an inferior or vice versa, there are also very few cases that can be construed as examples of Topical inferences; there is some minor discussion scattered throughout the treatise of inferences involving relative opposites,[41] for example, or things related as cause and effect,[42] but Topical inferences play no significant role in the section on enthymematic consequences.

Instead the rules presented in that section tend to be of this sort:

(12) The opposite of the consequent is not compatible with the antecedent.[43]

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[40] "*Quia si sic arguatur 'homo est asinus, ergo tu curris', ista consequentia tenet per regulam istam, scilicet si illud quod minus videtur inesse inest, et illud quod magis videtur inesse inerit; sed minus videtur inesse quod asinus insit homini quam cursus insit homini*" (par. 71).

[41] For example, "*in relativis a quo ad simpliciter tenet consequentia: quia sequitur 'mons est parvus respectu maioris, ergo mons est parvus'*" (par. 121).

[42] For example, "*si causa particularis in actu appropriata sit, eius effectus erit proprius. Ut 'si aedificans est, ergo fieri domus est': quia 'fieri domus' est effectus proprius aedificatoris*" (par. 112).

[43] "*oppositum consequentis non stat cum antecedente, ergo consequentia bona. Quia cum ista 'homo est' non stat ista 'nullum animal est', ideo sequitur ista 'homo est, ergo animal est'*" (par. 86).

(13) Whatever is incompatible with the consequent is incompatible with the antecedent.[44]
(14) A good consequence holds by a necessary medium.[45]
(15) Every good consequence has to be reduced to a syllogism.[46]
(16) From one [premiss] nothing follows, either enthymematically or syllogistically.[47]

There are two things worth noticing about these rules for enthymematic consequences. Though some of them, such as (12) and (13), are logical laws, others—such as (14), (15), and (16)—look more like rules of thumb for testing whether a given consequence is valid. The odd appearance of the rules for syllogistic consequences in the preceding section can be explained by supposing that they too constitute rules of this second sort. It is surprising to find, for example, that rather than any of the possible rules warranting one or another syllogistic mood, such as those rules that were prevalent in the first half of the twelfth century, Burley gives these two odd-looking rules for syllogistic consequences:

(17) If from the opposite of the conclusion of some syllogism and one of the premisses there follows the opposite of the other premiss, then the original syllogism was good.[48]
(18) Whatever does not follow from the antecedent [of a consequence] with some addition, either syllogistically or any other way, does not follow from the consequent with the same addition.[49]

And from (18), he derives

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[44] *"quod repugnat consequenti repugnat antecedenti. Quia enim ista 'nullum animal est', repugnat isti 'animal est', ideo repugnat antecedenti, quod est 'homo est'"* (par. 87).

[45] *"consequentia bona tenet per medium necessarium. Unde ista consequentia bona 'homo est, ergo animal est' tenet per hoc medium 'omnis homo est animal'. Ratio huius regulae est hoc quod medium est causa consequentiae, sed si effectus sit, oportet quod causa istius effectus sit. Et si consequentia sit bona oportet quod teneat pro omni tempore, et per consequens oportet quod medium pro omni tempore sit verum, et per consequens necessarium, quia omne quod est verum non potens esse falsum est necessarium"* (par. 115).

[46] *"omnis consequentia bona habet reduci in syllogismum"* (par. 117).

[47] *"ex uno nihil sequitur, nec enthymematice nec syllogistice"* (par. 130).

[48] *"si ex opposito conclusionis alicuius syllogismi cum altera praemissarum sequitur oppositum alterius praemissae, primus syllogismus fuit bonus"* (par. 82).

[49] *"quod non sequitur ad antecedens cum aliquo addito, nec syllogistice nec alio modo, non sequitur ad consequens cum eodem addito."* (par. 83).

(19) Whatever follows from the consequent [of a consequence] with some addition follows, either necessarily or formally, from the antecedent with the same addition.[50]

All three of these rules seem to be intended not as logical laws but instead as quick ways of checking the validity of any given syllogism.

That this is so is harder to see in the case of (18) and (19) than in the case of (17), but I take it the idea behind (18) is something of this sort. Suppose I want to check quickly whether the following syllogism is valid:

(i) (q) No animals are stones.
(r) All men are stones.
∴ (t) All men are animals.

To do so, by (18), I take a proposition which is antecedent to (q) (that is, a proposition which directly or indirectly entails (q))—for example, (p) 'All animals are animate'—and I see if the syllogism with (p) substituted for (q) is valid:

(ii) (p) All animals are animate.
(r) All men are stones.
∴ (t) All men are animals.

Since (ii) is not valid ("either syllogistically or in any other way"), (i) is not valid either.

The point of the qualifications such as "either syllogistically or in any other way" and "either necessarily or formally" in (18) and (19) can be seen by looking at an example. Suppose I want to test the validity of the argument

(iii) (p′) All animals are animate.
(r′) All men are animals.
∴ (t′) All men are substances.

I construct an analogous argument with a proposition consequent to (p′) as the first premiss:

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[50] *"quicquid sequitur ad consequens cum aliquo addito, sequitur ad antecedens cum eodem addito, puta necessario vel formaliter"* (par. 84).

(iv) (q′) All animals are substances.
(r′) All men are animals.
∴ (t′) All men are substances.

Since (iv) is valid, by (19) (iii) is also, but it holds necessarily rather than syllogistically since it has four terms.

Or to take a different example, suppose we want to use rule (18) to test this example of a syllogism in *Celarent*:

(v) (q″) No animals are stones.
(r″) All men are animals.
∴ (t″) No men are stones.

We pick a proposition antecedent to (q″)—for example, again, (p″) 'All animals are animate'; and we construct an analogous argument with (p″) as the first premiss:

(vi) (p″) All animals are animate.
(r″) All men are animals.
∴ (t″) No men are stones.

In our test argument, the conclusion (t″) does not follow syllogistically, but it is entailed indirectly by (p″) and (r″). (p″) and (r″) yield (s″) 'All men are animate.' And (s″) 'All men are animate' is antecedent to (t″) 'No men are stones,' just as (p″) 'All animals are animate' is antecedent to (q″) 'No animals are stones.'

This interpretation of Burley seems implausible for two reasons. In the first place, such a system of testing the validity of a syllogism is clumsy—more clumsy, in fact, than other methods Burley had available, such as the criteria summarized in the mnemonic verses for the valid moods of a syllogism. And in the second place, this test for the validity of a syllogism seems to involve the construction *and evaluation* of a second syllogism, so that the method seems pointless or nonterminating or both; either whatever method is applied to evaluate the second syllogism could be applied to the first syllogism directly, or else to evaluate the second syllogism we need to construct and evaluate a third, and so on infinitely. In defense of my interpretation, however, it should be noticed, first, that the rules for syllogistic consequences are presented as on a par with each other. But rule (17) seems plainly to be a rule for testing the validity of a syllogism, even though the preceding two criticisms of my interpretation apply to it also. Second, the purpose of these rules must be either to test the validity of syllogisms or to warrant it; I can see no third alternative. But (17) is much more objectionable as a rule *warranting* the validity of syllogisms than as a rule of thumb for testing it. If these rules and some of the others in the section on enthymematic consequences are rules for testing rather than warranting inferences, however, then it seems clear that Burley, at least in this treatise, is not entirely clear about the distinction between rules of thumb for testing and logical laws since we find these two sorts of rules indiscriminately mixed together in this section.

The second noteworthy characteristic of the rules for enthymematic consequences is the specific nature of certain of those rules and Burley's discussion of them, especially (14) and (16). Burley tends to present each of his rules briefly with a short example or explanation. But in the case of these two rules, he argues at length for his position and presents countervailing arguments, which he also takes account of. Rule (14) is one that seems basic to the stage of formal logic represented by Peter of Spain. Burley presents it as if it were a rule still widely accepted, but he argues against it by presenting examples of what he takes to be good consequences that cannot be reduced to syllogisms, such as 'A man is running; therefore, an animal is in motion' (which has four terms and so is not reducible to a syllogism).[51] Nonetheless, Burley's intention is not to reject (14) but only to qualify it. He distinguishes consequences into those that hold in virtue of the terms and those that hold in virtue of the form of the whole, such as instances of conversion. The former can be reduced to syllogisms; the latter, such as conversion inferences, cannot. Rule (14), then, on Burley's view holds only for certain sorts of consequences, namely, those that hold in virtue of their terms.

From a historical point of view, this qualification of (14) points in the direction of full-fledged, fourteenth-century theories of consequences, which tend to take syllogisms as one kind of consequence among several. The reason Burley gives for accepting this rule, however, seems to me to hark back to the first half of the thirteenth century; and neither this reason nor Burley's unqualified support of rule (16) appears altogether consistent with his qualification of (14).

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[51] *"Contra: consequentia est bona 'omnis homo est animal, ergo tantum animal est homo': et tamen non habet reduci in syllogismum. Sicut ista consequentia est bona 'homo currit, ergo animal movetur', et non reducitur in syllogismum, quia sunt quattuor termini"* (par. 118).

Burley's reason for accepting (14) is that in every genus there is something that is primary or prior which is the measure of all the secondary things that are in that genus, as whiteness is primary in the genus of color. The syllogism holds the analogous place in its genus, which is the genus of relationships (*habitudines*), on Burley's view; all the other relationships in the genus take their "evidence of necessity" from the syllogism and need to be reduced to it.[52] This view of the primacy of the syllogism and Burley's support of rule (16)—that from one premiss nothing follows (either syllogistically or enthymematically)—is in harmony with the logic of the first half of the thirteenth century; but, on the face of it, it seems inconsistent with his attitude toward such consequences as conversion inferences. Conversion consequences are not generally reducible to syllogisms (as Burley himself acknowledges), and it is not clear how a syllogism is supposed to be the measure, in any sense, of conversion consequences. Furthermore, since this is so, why should we assign any primacy to the syllogism, some forms of which *depend* on nonsyllogistic inferences such as conversion? And finally, given the validity of conversion consequences, why should we accept the rule that nothing follows from one premiss?

Burley's views in this treatise, then, seem not all clearly sorted out but appear to represent logical doctrines in transition between the terminists' Aristotelianism and full-fledged fourteenth-century theories of consequences. It is, of course, possible that Burley simply assumes that conversion consequences fall into a different genus from all other sorts of inferences, so that what he says about the primacy of the syllogism and his support for rule (16) is not meant to apply to them. But if that were so, it would seem to me to support in a different way the belief that this treatise shows us a transitional stage in logic, because it is not clear what reasons could be given for isolating conversion consequences in this way, and the implications of doing so for the status of the whole genus of syllogistic inferences are not thought out in this treatise.

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[52] *"Dicendum quod consequentia duplex est, quia quaedam est quae tenet respectu totius complexionis, et quaedam tenet respectu terminorum. Primo modo non oportet quod reducatur in syllogismum. Huiusmodi sunt omnes conversiones. Similiter quando arquitur ab exclusiva ad universalem de terminis transpositis et e contra, non oportet quod reducatur in syllogismum, quia tenet ratione totius complexionis. Ad aliud dicendum quod habet reduci in duos syllogismos. Unde intellectus istius regulae est: omnis consequentia tenens respectu incomplexorum vel formaliter incomplexionis habet reduci in syllogismum vel in syllogismos. Ratio huius regulae est quod in omni genere est unum primum, quod est metrum et mensura omnium posteriorum existentium in illo genere, sicut uncia in genere ponderum et albedo in genere colorum. Modo syllogismus est unum primum in genere habitudinum a quo omnes habitudines capiunt evidentiam necessitatis. Ideo omnes aliae habitudines habent reduci in syllogismum, sicut posteriora ad suum prius"* (par. 118).

Finally, two other things are worth noticing about this treatise. First, Burley speaks of inferences holding in virtue of an intrinsic or extrinsic *medium*.[53] This terminology occurs again most obviously not in Burley's later *De puritate artis logicae*, in which Burley speaks of intrinsic and extrinsic *Topics* instead, but rather in Ockham's *Summa logicae*. It is one of the peculiarities of Ockham's work that he does not there use the traditional terminology associated with Topics even when discussing traditional Topical inferences but instead speaks of Topics as intrinsic or extrinsic *media*. Second, in his basic division of consequences in this treatise Burley makes the old distinction between natural consequences, in which the consequent is understood in the antecedent, and accidental consequences, which he takes to be also of two sorts.[54] The first sort of accidental consequence consists in consequences which hold in virtue of the matter, or the significance, of the terms. Burley's example is "It is true that God exists; therefore it is necessary that God exists" because God's nature is such that in propositions about God truth and necessity are the same. The second sort includes those inferences whose antecedents are impossible or whose consequents are necessary. What Burley in this treatise took to be two sorts of accidental consequences quickly diverged, however. Burley himself in *De puritate* discusses only the second sort in his consideration of accidental (as distinguished from natural) consequences;[55] the first sort he discusses separately as a material consequence (distinguished not from natural but from formal consequences). On the other hand, what Ockham in his *Summa logicae* takes as a material consequence[56] is equivalent to the other of Burley's two sorts of accidental consequences: Ockham understands a material consequence as that kind of consequence in which the antecedent is impossible or the consequent necessary. These two distinct understandings of material consequence, which we find after Burley's *De consequentiis* in the work of Ockham and the later work of Burley himself, apparently come to represent two different traditions in theories of consequences in the remainder of the scholastic period. That Burley's *De consequentiis* contains these two competing versions of material consequence existing harmoniously as two species of accidental consequences is one more sign that this treatise of Burley's is a very early, transitional stage in the development of theories of consequences.

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[53] For example, "*consequentia bona tenet per medium necessarium*" (par. 115); "*consequentia semper est bona quando tenet per medium verum. Sed consequentia ut nunc tenet per medium et nunc verum. . . . Sed consequentia simpliciter bona tenet per medium intrinsecum necessarium; sed consequentia accidentalis tenet per medium extrinsecum*" (par. 116).

[54] "*Consequentia simplex sic dividitur: quaedam est naturalis et quaedam accidentalis. Consequentia naturalis est quando consequens est de intellectu antecedentis, nec antecedens potest esse verum nisi consequens sit verum; ut 'si homo est, animal est'. Consequentia accidentalis est duplex: quaedam tenet gratia terminorum vel gratia materiae, sicut ista 'deum esse est verum, ergo deum esse est necessarium'; et tenet gratia terminorum vel materiae, quia veritas in deo et necessitas sunt eadem. Quaedam est consequentia accidentalis sic: ex impossibili sequitur quodlibet; et necessarium sequitur ad quodlibet. Exemplum primi 'tu es asinus, ergo tu es capra, et lapis' etc. Exemplum de secundo ut 'tu curris, ergo deus est'. Item consequentia accidentalis est quando consequens non est de intellectu antecedentis*" (par. 70).

[55] Burley, *De puritate*, ed. Boehner, p. 61.

[56] William Ockham, *Summa logicae*, ed. P. Boehner, G. Gál, and S. Brown (St. Bonaventure, N.Y.: Franciscan Institute, 1974), pp. 587–589.

9

William of Sherwood's Treatise on Obligations

Perhaps one of the last really obscure areas of medieval logic is contained in the scholastic treatises on obligations. We know something about the contents and the authors of such treatises; and we think that these treatises came to be a standard, perhaps even an important, part of medieval logic. But we do not yet understand the nature of the material contained in them; and we are still unclear about its function and purpose and its significance for other parts of medieval logic. Recent scholarship, especially that of Paul Spade and L. M. de Rijk, has added greatly to our understanding of this material, and a particularly important contribution to the field is Romuald Green's dissertation, "An Introduction to the Logical Treatise 'De Obligationibus' with Critical Texts of William of Sherwood (?) and Walter Burley" (Louvain, 1963). This work, which is a forthcoming publication of the Franciscan Institute,[1] is especially valuable for a study of the logical treatises on obligations, not only because Green gives an extensive analysis of the nature and history of these treatises but also and perhaps more significantly because he presents us with critical editions of two very important treatises on obligations: those by the well-known medieval logicians William of Sherwood and Walter Burley.[2] The edition of Sherwood's treatise in particular is a wel-

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[1] The published version of Green's work will not be available for some time, so I have based my citations on the texts as edited in Green's dissertation, according to the revised version available from the Franciscan Institute. References to the introductory chapters of Green's book are given as "Intro.: [plus chapter number]"; references to the edition of Sherwood are given by Green's paragraph numbers; and the one reference to the edition of Burley is given as "Burley [plus Green's paragraph number]." I am grateful to Father Gedeon Gál and to Professor Paul Vincent Spade for helping me obtain a copy of the dissertation.

[2] Green is hesitant about attributing the first treatise to Sherwood, and for various reasons I myself have strong reservations about the attribution to Sherwood. [In a joint article, in fact, Paul Spade and I have argued that this treatise is not Sherwood's. See

come contribution to the field, because though we have available a number of discussions of obligations by recognized fourteenth-century logicians, such as William Ockham, Robert Fland, Richard Lavenham, and Roger Swyneshed, Sherwood's is the only treatise by a well-known thirteenth-century logician which is now available in a contemporary edition. Furthermore, with the various anonymous thirteenth-century treatises edited by de Rijk, Sherwood's is among the very early discussions of obligations now available (though it is plain that Sherwood was working within an already well-established tradition). Consequently, analysis of Sherwood's work on obligations, made available by Green's edition, is likely to be especially fruitful for our understanding of the nature of this peculiar part of medieval philosophy.

It is evident that scholastic work on obligations was part of a changing tradition of logic. Material associated with obligations can be found in contexts as diverse as the twelfth-century treatise *Excerpta Norimbergensia* and the fourteenth-century *Sophismata* of Richard Kilvington.[3] It will be some time before we are able to trace the development of scholastic discussion of obligations or even to say anything definitive about Sherwood's work on the subject and its place in the tradition. This essay using the materials made available by Green's work, is a preliminary investigation of the function and purpose of obligations on Sherwood's view.

The Nature of Obligations

There are as many guesses about the purpose and function of the medieval treatises on obligations as there are scholars who have written on the subject: it has been described variously as anything from ingenious schoolboy exercises to primitive axiomatized logic. What

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"Walter Burley and the *Obligations* attributed to William of Sherwood," *History and Philosophy of Logic*, 4 (1983), 9–26.] In his articles on early obligations treatises "Some Thirteenth Century Tracts on the Game of Obligation," *Vivarium*, 12 (1974), 94–123; 13 (1975), 22–54; 14 (1976), 26–49, de Rijk, however, has maintained that Green's hesitation is mistaken and that there can be no doubt about Sherwood's authorship of the treatise (1976:28, n. 11). For the sake of convenience and for purposes of this discussion I am simply adopting de Rijk's view; nothing of significance in my essay turns on attributing this treatise to Sherwood, and it is not my aim here to present a detailed historical analysis of the authorship of the treatise.

[3] See especially the last four sophismata. I am grateful to Norman Kretzmann for calling my attention to the obligations material in Kilvington's *Sophismata*, which he and Barbara Ensign Kretzmann are editing.

has been generally clear, however, is that obligations treatises are set in the context of dialectical disputation, in the highly structured and stylized form which the scholastics inherited from Aristotle's *Topics* via Boethius. Contemporary scholars have tended to see the ultimate source of obligations treatises in Book VIII of Aristotle's *Topics*, which is devoted almost exclusively to strategies for the disputation's interlocutor (called "the opponent" in obligations treatises) and for his respondent. The scholastics themselves, however, tend to attribute the source for their work on obligations to one or another or both of *two* Aristotelian passages, only one of which is in *Topics* VIII. This passage, from *Topics* VIII.3 (159a15–24), says that the primary job of the respondent in a disputation is to answer in such a way that anything impossible which the respondent is compelled to defend is the fault of the *position* he maintains rather than the fault of his *defense* of that position. The second passage is from *Prior Analytics* I.13 (32a18–20), and says that from the possible, nothing impossible follows. These two quotations together provide, I think, the theoretical basis for scholastic work on obligations. If the respondent in a disputation adopts a position which is possible and subsequently is compelled to maintain something impossible (something logically incompatible with the position adopted or something impossible in its own right), then it is plain that he has failed in his job as respondent. Nothing impossible *follows* from the possible; so because it is possible, the position adopted by the respondent does not entail anything impossible. If the respondent is then logically compelled to maintain contradictory propositions, it must be because he has made logical mistakes in responding, so that the impossible, which is not entailed by the original position the respondent adopts, *is* entailed by the respondent's faulty defense of that position.

An obligations disputation proceeds in this way, according to Sherwood's account. An interlocutor or opponent begins the disputation by putting forward a proposition which the respondent obligates himself to defend as true if the proposition is false (*positio*), or as false if the proposition is true (*depositio*), or as of uncertain truth-value (*dubitatio*). (These are the three major divisions of obligations on Sherwood's view; there are other minor divisions which I will not take into account here.) For the sake of simplicity and brevity, I will limit my consideration hereafter to *positio*; it receives by far the greatest space in Sherwood's treatise, too. Though Sherwood does devote a brief section to the special circumstances in which the opponent's original position may itself be impossible, it is otherwise a general condition of the opponent's position that it be a possible proposition, that is, one which does not entail a contradiction. After positing his original position, which the respondent grants (*concedit*) as true, the opponent successively proposes a number of propositions, each of which the respondent must grant or deny or maintain as doubtful (that is, of uncertain truth-value), according to three basic rules.

(1) If the proposed proposition follows from (a) the original position, (b) some previously granted proposition, or (c) the opposite of some previously denied proposition, or some conjunction of these, then the proposed proposition is to be granted.
(2) If the proposed proposition is incompatible with (a), (b), or (c) or some conjunction of these, then the proposed proposition is to be denied.
(3) If the proposed proposition neither follows from nor is incompatible with what the respondent has previously maintained, then it is irrelevant; and an irrelevant proposition is to be granted or denied according to whether it is true or false in fact.

The object of the opponent is to maneuver the respondent into a position where he is compelled to maintain contradictories, that is, where he is compelled to assign contradictory truth-values to the same proposition or the same truth-value to contradictory propositions. When this happens, the opponent says "*cedat tempus*," and the disputation is over. Since the original position is possible and since "from the possible nothing impossible follows," the contradiction is the fault of the respondent and not of his position. Hence the respondent has answered badly or incorrectly (*male*) somewhere in the disputation; the opponent has "won," then, and the disputation is over.

Based on the Aristotelian principles cited above, the ostensible purpose of Sherwood's treatise is apparently to teach an opponent how to trap a respondent into maintaining contradictories and to teach a respondent how to escape from such traps. Sherwood accomplishes this end, however, not in a straightforward narrative but rather by considering what for lack of a better phrase might be called paradoxes of disputation. A paradox of disputation occurs when, after a seemingly unimpeachable exchange between an opponent and his respondent, the opponent proposes a proposition which the respondent can neither grant nor deny because either the granting or the denial leads immediately to a contradiction. The heart of Sherwood's treatise is a long string of such paradoxes, and something similar is true of the other thirteenth-century treatises edited by de Rijk.

Scholars have commented that, though there are numerous extant treatises on obligations, there is apparently no extant record of even a single actual disputation carried out according to the rules of obligations treatises. This fact, the basic rules of obligations, and the requirement that the respondent's original position be false, all strongly suggest that scholastic interest in obligations is not focused on dialectical disputation or the strategies for its conduct, even if Book VIII of Aristotle's *Topics*, which is concerned exclusively with strategies for disputation, is one of the sources for obligations. Rather, the material of these treatises seems to have a much stronger affinity with scholastic work on consequences or insolubilia. Sherwood himself speaks of obligations as an art (see, e.g., Green, 1.02 and 1.04), perhaps directly or indirectly echoing Aristotle's description of the contents of his *Topics* as a *technē*. And the suggestion in Sherwood's work as well as elsewhere is that the art in question has to do with drawing valid inferences from the original position (with or without the addition of true premisses).[4] On the other hand, the obligations paradoxes frequently arise with the first or second proposition (after the original position) which the opponent proposes, and they are sometimes very similar to insolubilia. One of the clearest of such cases occurs in Burley's treatise on obligations (Green, Burley 1.03):

> Let 'A' signify a donkey in a true proposition, a man in a false proposition, and the disjunction 'a man or not a man' in a proposition of uncertain truth-value. Then [let this proposition be proposed to the respondent]: either you are A or you are not. If you are A, then this ['you are A'] is true. . . . If you are not A, then this ['you are A'] is false. . . . If 'you are A' is of uncertain truth-value, then A is the same as 'a man or not a man,' and then this is of uncertain truth-value: 'you are a man or not a man.'[5]

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[4] Cf., e.g., *Tractatus Emmeranus De falsi positione* (de Rijk, "Some Thirteenth Century Tracts," 1974, p. 103.16–17, 21–23): "*Per hoc patet quod positio est prefixio alicuius enuntiabilis ad sustinendum tamquam verum ut videatur quid inde sequatur. . . . cum falsa non in se causam concessionis ⟨habeant⟩, indigent positione ut concedantur et videatur quid inde accidat*"; and *Obligationes Parisienses* (de Rijk, "Some Thirteenth Century Tracts," 1975, p. 27.14–17): "*Fides sive scientia de consequentiis rerum maxime acquiritur hoc genere disputationis. Et propter hoc ⟨magis⟩ usitatur in rebus casualibus hoc genus disputationis quia in eis magis manifesta est consequentia quam in rebus necessariis.*"

[5] "*Significet A asinum in propositione vera, hominem in propositione falsa, et hoc disiunctum: homo vel non homo, in propositione dubia. Deinde: aut tu es A aut non. Si es A, tunc haec ⟨'tu es A'⟩ est vera, igitur A est asinus, igitur tu es asinus. Si non es A, tunc haec ⟨'tu es A'⟩ est falsa, et in propositione falsa A significat hominem, igitur haec est falsa: tu es homo. Si haec sit dubia 'tu es A' tunc A est idem quod iste terminus 'homo vel non homo', et tunc haec esset dubia: tu es homo vel non homo.*"

And treatises on obligations tend, in fact, to be paired with treatises on insolubilia. There is not much direct evidence for the thirteenth century, but the pairing of obligations and insolubilia is clear in fourteenth-century material. For example, the chapters on obligations are immediately preceded or followed by chapters on insolubilia in Ockham's *Summa logicae,* Albert of Saxony's *Perutilis logica,* and Paul of Venice's *Logica magna.* Fourteenth-century statutes of the Arts Faculty of Cologne mention obligations and insolubilia together, and so does the fourteenth-century treatise on German university education, *Commendation of the Clerk* (cf. Green, Intro.: Ch.II). Obligations, insolubilia, and consequences apparently came to be lumped together as "three modern treatises" and to be attached to editions of Peter of Spain. And there is ample evidence in treatises and in testimony concerning university education for the continued pairing of obligations and insolubilia in the fifteenth and sixteenth centuries (Green, Intro.: Ch.II).

The emphasis on paradoxes and the pairing with treatments of insolubilia make it conceivable that the initial interest in obligations was just in the various paradoxes themselves, apart from any well-developed, broader philosophical concern, so that it is not impossible that discussion of obligations arose at least in part as a result of scholastic interest in fallacies. Obligations are typically seen as part of disputation. Even in the twelfth century, there is some connection between discussion of disputation and terminology associated with obligations. *Excerpta Norimbergensia,* for example, says that a disputation consists of opposition and response,[6] and *Ars Emmerana* explains that disputation has three parts: *positio,* opposition, and response.[7] The thirteenth-century treatises edited by de Rijk tend to make the same point.[8] In some of these treatises, either disputation or obligations themselves are connected with fallacies. *Excerpta Norimbergensia* discusses disputation in its section on the sophistical art, where fallacies are also discussed. It divides disputation into two kinds, the science of argument and the science of *redargutio,* which is opposing and responding. And it claims that all species of sophismata fall under this science of opposing.[9] *Tractatus Sorbonnensis De petitionibus contrariorum* divides all sophismata into those that depend on a sophistical *locus* (fallacies proper) and those that depend on a hidden incompatibility, which is how this treatise seems to understand obligations.[10] Even in Peter of Spain's *Tractatus,*[11] and Lambert of Auxerre's *Logica,*[12] the section on fallacies contains a long discussion of disputation. One of the species of disputation discussed there has *redargutio* as its goal, and *redargutio* as Peter and Lambert define it is very similar to the goal in obligations: the denial of something previously granted or the granting of something previously denied in one and the same disputation by the force of the argument. All this suggests some early connection between interest in obligations and interest in fallacies; but we are not yet in a position to trace the early history of this material, and anything definite about the origins of obligations treatises must await a good deal more presentation and analysis of the relevant early texts.

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[6] De Rijk, *Logica Modernorum* (Assen: Van Gorcum, 1967), vol. II, pt. 2, p. 127; cf. also pp. 125–126, and vol. II, pt. 1, pp. 155–160.

[7] De Rijk, *Logica Modernorum,* vol. II, pt. 2, p. 148.

[8] Cf. de Rijk, "Some Thirteenth Century Tracts," 1974, pp. 117.8–9, and 1975, pp. 26.1–27.26.

[9] De Rijk, *Logica Modernorum,* vol. II, pt. 2, pp. 130–132.

Analysis of Obligations in Sherwood's Treatise

Sherwood's treatise is ordered around the main subdivisions of obligations, as he explains them. After a short introductory section, there is a long discussion of *positio,* which occupies more than three-fourths of the treatise, followed by a much shorter section on *depositio,* and a brief section on *dubitatio.* Within the sections on *positio* and *depositio,* there are, roughly speaking, the same subsections in the same order. First, Sherwood presents basic rules (for *positio* or *depositio*), and then in a section *de diversis opinionibus* he considers implications of and objections to the rules. With the rules established, he turns to a discussion of ways of making sophismata and solutions to these sophismata. These sophismata tend to be based on an initially unperceived logical relation between propositions in the argument of a given sophisma; and in many cases the logical relation is that between contraries or subcontraries. The *Tractatus Sorbonnensis De petitionibus contrariorum,* in fact, resembles an isolated subsection of just this sort, though it is very different from the actual content of any such section of Sherwood's treatise. The discussion of ways of making sophismata constitutes the longest subsection of all for both *positio* and *depositio;* and the treatment of sophismata for *positio* is the longest subsection in the treatise. After this discussion of sophismata, there are several short subsections dealing with particular sorts of cases, such as, for example, those in which the *positio* or *depositio* is a disjunction or a conjunction or dependent on a relative term and so on. The section on *depositio* concludes with a consideration of such cases; that on *positio* concludes with a brief subsection discussing the sort of case in which the *positio* is a proposition which is not possible. (Burley's treatise on obligations covers several other divisions besides Sherwood's three, but Burley's sections on *positio* and *depositio* are very similar in content and order to Sherwood's.)

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[10] De Rijk, "Some Thirteenth Century Tracts," 1976, p. 43.1ff.

[11] De Rijk, ed., *Peter of Spain, Tractatus* (Assen: Van Gorcum, 1972), pp. 94ff.

[12] F. Alessio, ed., *Logica (Summa Lamberti)* (Florence: La Nuova Italia Editrice, 1971), pp. 142ff.

In all the subsections except that presenting the rules, the treatise proceeds by a successive consideration of paradoxes. Many of these seem small and not broadly fruitful for either logic or semantics. Consider, for example, this case from the subsection on vicarious *positio* (Green, 1.79):

> (E1) For instance, suppose that you are responding for [the donkey] Brunellus to this: 'you are a donkey', or let it be posited for Brunellus that you are a donkey. Then [let this be proposed]: 'you are a donkey'. If you grant it, the disputation is over. Brunellus would not grant anything impossible; and you have granted [something impossible, namely, that you, a man, are a donkey], and you had to respond for Brunellus; therefore, you have responded badly. If you deny it, the disputation is over. Brunellus would grant that he himself is a donkey, if this were proposed to him, and you have denied it; therefore, you have responded badly.[13]

This paradox revolves around an apparently uninteresting ambiguity of reference in cases in which the respondent is answering vicariously: is the personal pronoun in the proposed proposition to be taken as referring to the respondent *in propria persona* or not? Sherwood deals with this sort of case simply by stipulating that though the proposition is directed toward Brunellus, the pronoun does refer to the respondent *in propria persona*; and therefore the respondent, although answering for Brunellus, should deny 'you are a donkey.'

Or consider the following example. "It is possible that a white thing

[13] *"Verbi gratia, respondeas pro Brunello ad hanc: 'tu es asinus'; vel sic: ponatur pro Brunello et esse asinum. Deinde: tu as asinus. Si concedas, cedat tempus, Brunellus nullum concederet impossibile, et tu concessisti et debuisti respondere pro eo, ergo male. Si neges, cedat tempus, Brunellus concederet se ipsum esse asinum, si ei proponeretur, et tu negasti, ergo male. Dicendum quod, si aliquis dicat Brunello: 'tu es asinus', non proponitur ista nisi secundum vocem, nec concederet Brunellus istam: 'tu es asinus', te, dico, demonstrato."*

be black, Sherwood says [Green, 1.13], and so 'a white thing is black' can be posited by an opponent:

> (E2) But then once this has been posited, there is uncertainty about how one ought to respond to this: 'a white thing is black.' Because if one grants it, one grants something impossible, although the original position is possible. If one denies it, [however,] one denies the original position.[14]

Sherwood suggests two different ways of dealing with this particular case. The first employs ampliation, one of the 'properties of terms,' to analyze the proposition It is possible that a white thing be black." "'Possible' ampliates [extends the application of] 'be black' to some future time, and 'white' stands for that which is now white but which in some future time can be black" (Green, 1.13). We can then suppose that by stripping away the modal operator and transforming the modal proposition to "a white thing is black" we are taking the future time, to which 'possible' ampliates 'be black,' as present, so that by the proposition "a white think is black," we ought to understand "that which was white is black." Alternatively, we can take the possibility in question to be the possibility that some particular individual such as Socrates, who happens to be white, can be black. And in this case we ought to take the original position not as "a white thing is black" but as "Socrates (or some other particular individual) is black." On either analysis, it is then acceptable to grant "a white thing is black"; and the initial paradox is resolved.

Though this case is more complicated than that involving vicarious response, what is apparently of philosophical interest in it—the use of one of the properties of terms and analysis of the modal operator 'possible'—is rudimentary and not developed in any detail. Sherwood's work on these cases and others like them gives the impression

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14. *"Sed dubitatur tunc, facta positione, qualiter sit ad hanc respondendum 'album esse nigrum', quia si concedat, concedit impossibile, possibili facta positione. Si neget, negat positum. Et possumus dicere quod in hac, 'album esse nigrum est possibile', ly possibile ampliat ly esse nigrum ad aliquod tempus futurum, et ly album stat pro eo quod nunc est album, quod quidem in futuro tempore potest esse nigrum. Unde si illud futurum accipiamus tamquam praesens, erit ly album respectu huius ut praeteritum; sic autem accipitur cum ponimus. Ponitur enim pro tempore pro quo est possibile et propterea per haec verba ponimus 'esse nigrum' in esse praeterito albo, et est ipsum positum non: 'album esse nigrum', sed: 'quod fuit album esse nigrum'. Vel aliter sic: possibilitas cecidit super compositionem quae est inter esse nigrum et aliquam rem eius quod est album, ut Socratem vel Platonem. Unde si resumit positum, debet sic resumere: 'Socrates est niger vel Plato', et non sic: 'album est nigrum'."*

of producing ad hoc solutions to a variety of rather disparate puzzles. The subsection on ways of making sophismata, however, contains a string of paradoxes which are more sophisticated and philosophically interesting. Consider, for instance, this example (Green, 1.40):

> (E3) For example, [suppose] it really is the case that Socrates does not exist. 'A' names [the proposition] that Socrates is running or you are standing, 'B', that Socrates is moving or you are not standing. Let A and B be posited together. Then [propose this]: 'Socrates is moving'. It seems as if this must be denied since it is false and does not appear to follow [from the conjunction in the *positio*]. Once this has been denied, let this be proposed: 'Socrates is running'. This must be granted, because it follows [that] if A and B are true and Socrates is not moving, then B is true because of the part [that says] that you are not standing; therefore A is not true because of the part [that says] that you are standing. Therefore [A is true] because of the part [that says] that Socrates is running, and so that must be granted. Once this has been granted, let 'Socrates is moving' be proposed again. If you grant it, the disputation is over: you have granted and denied the same [proposition] within one and the same disputation; therefore you have responded badly. If you deny it, the disputation is over: you have denied something which follows [from something you previously granted]; therefore, you have responded badly. For it follows that if Socrates is running, he is moving.[15]

The course of this disputation can be schematized in this way:

Opponent's propositions	*Respondent's responses*	*Reasons for responses*
1. (Socrates is running or you are standing) and (Socrates is moving or you are not standing)	1a. T	(1) is the *positio*

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[15] *"Verbi gratia, in rei veritate Socrates non est. Appellat A: Socratem currere vel te stare, B: Socratem moveri vel te non stare. Componantur A et B. Deinde: Socrates movetur. Haec videtur esse neganda, cum sit falsa et non videtur sequi. Qua negata, proponatur haec: Socrates currit. Haec est concedenda, quia sequitur, si A et B sunt vera et Socrates non movetur, B est verum pro hac parte 'te non stare'. Igitur, A non est verum pro hac parte 'te stare', ergo, pro hac parte 'Socratem currere', et sic haec est concedenda. Qua concessa, proponatur iterum: Socrates movetur. Si concedas, cedat tempus, idem concessisti et negasti in eadem disputatione, ergo male. Si negas, cedat tempus, negasti sequens, ergo male. Sequitur enim, si Socrates currit, Socrates movetur." "Solutio istorum est concedere consequens dictae conditionalis, ubicumque proponatur"* (Green, 1.42).

2. Socrates is moving	2a. F	(2) is irrelevant and false
3. Socrates is running	3a. T	(3) follows from the truth of (1) and the falsity of (2)
4. Socrates is moving	4a. —	

The respondent is stymied at (4a) because whether he assigns the value *true* or the value *false*, he will be involved in a contradiction. The respondent cannot grant (4) because he already has denied it, at (2a). And he cannot deny it because the falsity of (4) entails the falsity of (3), which the respondent has granted. Since (1) is a possible proposition, the impossible, or the contradiction, brought about by either answer on the respondent's part at (4a) is the fault of the respondent and not of the original position (1).

In resolving this paradox, Sherwood locates the respondent's mistake at (2a) (Green, 1.42). There, he says, the respondent should have granted rather than denied (2), because (2) is in fact not irrelevant to the preceding proposition. There is a conditional in the argument which the respondent has failed to perceive: the antecedent of the first disjunction in (1) entails the antecedent of the second disjunction; and this conditional together with the conjunction of the two disjunctions entails (2). That is, Sherwood is showing that the respondent in this case is involved in contradiction because he does not notice (soon enough) the hidden conditional and/or because he is ignorant of the logical truth:

$$\{(p \rightarrow q) \wedge [(p \vee r) \wedge (q \vee \sim r)]\} \rightarrow q.$$

Or consider this case (Green, 1.46):

> (E4) Similarly, 'A' names [the proposition] that 'you respond badly' and 'you do not know that you respond badly' are alike [with respect to truth-value], and 'B,' that you are awake. Let it be posited that A and B are alike [with respect to truth-value]. Then [let this be proposed]: 'you are awake.' This is true and not incompatible [with anything previously granted]; therefore, it is to be granted. Then [let this proposed]; 'you respond badly.' This is false and does not follow [from anything previously granted]; therefore, it is to be denied. Then [let this be proposed]: 'you know that you respond badly.' If you grant

> this, the disputation is over: you have granted something incompatible with the opposite of a proposition previously denied; therefore, you have responded badly. If you deny it, the disputation is over: you have denied something which follows [from what was previously granted]; therefore, you have responded badly. For it follows that if A and B are alike [with respect to truth-value] and B is true, as was granted, then A is true. Therefore, 'you respond badly' and 'you do not know you respond badly' are alike [with respect to truth-value]. But 'you respond badly' is false, as was granted; therefore the other proposition is also false. Therefore, its opposite, namely, 'you know you respond badly' is true.[16]

We can show the structure of this disputation as before:

Opponent's propositions	*Respondent's responses*	*Reasons for responses*
1. These two propositions have the same truth-value: (A) (i) "you respond badly" and (ii) "you do not know you respond badly" have the same truth-value and (B) you are awake	1a. T	(1) is the *positio*
2. You are awake	2a. T	(2) is irrelevant and true
3. You respond badly	3a. F	(3) is irrelevant and false
4. You know you respond badly	4a. —	

The puzzle in this case concerns the respondent's answer at (4a). If

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[16] *"Item appellat A: te male respondere et te nescire te male respondere esse similia, B: te vigilare. Ponatur A et B esse similia. Deinde: tu vigilas. Hoc est verum non repugnans, ergo est concedendum. Deinde: tu male respondes. Hoc est falsum non sequens, ergo negandum. Deinde: tu scis te male respondere. Si concedas, cedat tempus, concessisti repugnans opposito praenegati, ergo male. Si neges, cedat tempus, negasti sequens, ergo male. Sequitur enim, si A et B sunt similia et B est verum, ut concessum est, ergo A est verum. Ergo 'te male respondere' et 'te nescire te male respondere' sunt similia. Sed 'te male respondere' est falsum, ut concessum est, ergo et reliquum. Ergo eius oppositum, scilicet, 'te scire te male respondere', est verum." "Et non differt hoc sophisma ab aliis, nisi quod in aliis expresse ponuntur duo subcontraria esse similia, hic autem ex contingenti, scilicet, per hoc quod conceditur ipsum B. Unde, concesso B, oportet concedere A et sic 'te male respondere', cum non possit esse simile ei, quod est 'te nescire te male respondere', nisi in veritate tantum."* (Green, 1.47)

(4) is false, then (ii) is not false—Sherwood apparently is taking (ii) as (ii') "it is not the case that you know you respond badly." If (ii) is not false, then (i) and (ii) do not have the same truth-value. In that case, (A) is false; and therefore, (A) and (B) do not have the same truth-value. Thus, the denial of (4) entails the denial of the *positio*. The truth of (4), on the other hand, entails the truth of (3), which the respondent has just denied. Hence, no matter what truth-value the respondent assigns to (4), he is caught in contradiction.

Sherwood presents this example to show what can happen when there are unperceived subcontraries in the *positio*. He understands (i) and (ii) as subcontraries, and consequently he locates the respondent's mistake at (3a). It follows from the granting of (1) and (2) that A is true. Then because (i) and (ii) are subcontraries, A is true only in case both (i) and (ii) are true, since if one is false, the two cannot have the same truth-value. Therefore, to be consistent, the respondent should *grant* (3). That is, given that (i) and (ii) cannot both be false, if (1) and (2) are true, (i) and (ii) are also both true. Hence the respondent is mistaken in thinking that (3) is irrelevant; in fact, because (3) and (ii) are subcontraries, they both follow from the respondent's previous answers, and so by the basic rules of obligations they are both to be granted.

These paradoxes based on the respondent's failure to perceive a logical relation in the propositions of the original position make it seem as if the main purpose of obligations is just to establish a rudimentary sort of formal logic. But to adopt such a view of obligations is to miss an important side of the material, as the following example indicates (Green, 1.22):

> (E5) [Suppose that] in reality you have never granted that God exists but instead you doubt this. Let it be posited that you have not granted that God exists.[17] Then [let this be proposed]: 'God exists.' This is to be granted. Then [let this be proposed]: 'you have not granted that God exists.' This must be granted because it was posited and yet it is impossible *per accidens*.[18]

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[17] This is one of the rare cases in which the *positio* is not incompatible with the state of affairs described in the immediately preceding supposition "*in rei veritate*." This is the case because otherwise the *positio* would not be possible since it is about the past.

[18] "*in rei veritate numquam respondisti ad Deum esse, sed hoc dubitas. Ponatur te non respondisse ad Deum esse. Deinde: Deus est. Haec est concedenda. Deinde: tu non respondisti ad Deum esse. Haec est concedenda quia posita et tamen est impossibile per accidens.*" His point involves a proposition becoming impossible during a dispute.

The structure of this short argument can be shown as before.

Opponent's propositions	*Respondent's responses*	*Reasons for responses*
1. You have not granted that God exists	1a. T	(1) is the *positio*
2. God exists	2a. T	(2) is irrelevant and true
3. You have not granted that God exists	3a. —	

(3) follows from (is identical with) (1), and so, as Sherwood says, (3) must be granted. What, then, is the difficulty at (3a)? We do not have here the simple case of the preceding examples, in which the truth or falsity of the troublesome proposition in the argument conflicts with some other *proposition* to which the respondent is committed. If (3) conflicts with anything here, it seems to be with the respondent's *act* of granting (2). That is, the difficulty here arises because the same respondent who has just granted (2) "God exists" is then asked to grant (3) "you have not granted that God exists"; and though (3) does not conflict with (2), it does conflict with the respondent's *granting* of (2).

Plainly, for such a conflict to arise it is essential that there be in the premisses of the argument a reference to the evaluator of these premisses. If this argument were to be recast without such a reference, no difficulty would arise. Suppose, that is, the argument were this:

Opponent's propositions	*Respondent's responses*	*Reasons for responses*
1′. Socrates has not granted that God exists	1′a. T	(1′) is the *positio*
2′. God exists	2′a. T	(2′) is irrelevant and true
3′. Socrates has not granted that God exists	3′a. T	(3′) follows from the truth of (1′)

There is in this case no difficulty at all about the respondent's answer at (3′a).

Purpose and Function of Obligations

It is characteristic of many, though not all, of the paradoxes which form the backbone of Sherwood's treatise that the premisses of the argument contain some reference to the evaluator of those premisses. In some of the paradoxes, as in (E1) which involves vicarious responses, this sort of reference to the evaluator seems to do no more than contribute confusion (or, perhaps, the appearance of paradox) to the argument. In the last argument considered above in (E5), this sort of reference creates a much more interesting philosophical difficulty. In (E4), the reference to the evaluator of the premisses has at least two functions. First, it accounts for the ready granting of the crucial proposition (B), "you are awake." The truth of (B) and the *positio* entail the truth of (A), namely, that proposition (i) and (ii) have the same truth-value. And so the granting of (B) sets the stage for the trap involving the respondent's failure to perceive that (i) and (ii) are subcontraries. Second, and more important, the reference to the evaluator of the premisses at the least obscures the relation of subcontrariety between (i) and (ii). To see that this is so, suppose we try to show the respondent that (i) and (ii) are subcontraries. We say to the respondent "suppose you assign the value *true* to (i), 'you respond badly', then what value can you assign to (ii), 'you do not know you respond badly'?" That the respondent can assign the value *true* also to "you do not know you respond badly" is made at least less apparent by the fact that he himself has just assigned the value *true* to "you respond badly." (And if we took (i) and (ii) to be mentioning one and the same instance of responding—e.g., (i") "you respond badly at step (3a) of this argument" and (ii") "you do not know that you respond badly at step (3a) of this argument," this case becomes similar to (E5). Once the respondent grants (i"), he *cannot* consistently grant (ii"), unless we stress in a way unwarranted by the context of (E4) the reference to knowledge in (ii").)

Though a great deal more work needs to be done before a definitive account of the purpose and function even just of Sherwood's treatise on obligations can be written, it seems clear that at least one of his main interests revolves around such references in the premisses to the evaluator of the premisses. Something similar is true of the thirteenth-century treatises on obligations edited by De Rijk (except for *Tractatus Sorbonnensis De petitionibus contrariorum*, which seems to be a special case for other reasons as well). Both the *Tractatus Emmeranus De falsi positione*[19] and the *Obligationes Parisienses*, for example, consider such examples of *positio* as these: "you grant that Socrates is a donkey"[20] and "Socrates is white or you must grant that Socrates is white."[21] There are other such examples of *positio*; and sometimes a reference to the evaluator of the premisses occurs not in the *positio* but in one of the succeeding propositions.

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[19] De Rijk, "Some Thirteenth Century Tracts," (1974, p. 102) emphasizes that both the anonymous author of this treatise and Burley in his treatise on obligations reject what de Rijk calls the Parvipontanean thesis, namely, that the necessary follows from anything

In *Tractatus Emmeranus De falsi positione* and *Obligationes Parisienses* (more perhaps than in Sherwood), however, there are paradoxes where neither the *positio* nor the succeeding propositions include a reference to the evaluator of the premisses. Many of these cases are similar to this example:[22] "Let 'A' refer to 'nothing is posited'; and let 'B' refer to 'the proposition of the *positio* has the same truth-value as "A". Let the *positio* be B." Such an example bears at least a strong resemblance to insolubilia. And it may be that the pairing of treatises on insolubilia and treatises on obligations provides a good suggestion as to the purpose and function of obligations. What a reference in the premisses to the evaluator of those premisses can produce is a logically troublesome reflexivity, which is reminiscent of, though not identical

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and that anything follows from the impossible. It would indeed be surprising to find Burley rejecting these fundamental logical truths since he takes them for granted elsewhere. (Cf. Walter Burley, *De puritate artis logicae Tractatus longior*, ed. Philotheus Boehner [St. Bonaventure, N.Y.: Franciscan Institute, 1955], pp. 248.24–249.3.) But a closer comparison of the relevant passages with that in Sherwood shows that de Rijk has misunderstood the point here (Green, 1.85):

"*Quaeritur quae consequentia attendenda est in hac positione [*where the *positio* is something impossible*]. Est enim consequentia duplex: aut finita, aut infinita. Infinita dupliciter: aut ex parte ante, qua dicitur quod necessarium sequitur ad quodibet, aut ex parte post, qua dicitur quod ex impossibili sequitur quodlibet. Neutra istarum est hic attendenda, tum, quia infinita, et ob hoc, extra artem, cum, quia sic omnia essent sequentia, et sic non esset hic meta. Finita autem dupliciter est: quando consequens intelligitur in antecedente, et quando consequens non potest esse verum sine antecedente, cum non intelligitur in ipso.*"

In other words, in cases where the *positio* is impossible and we are considering what follows from the *positio*, we cannot employ the 'Parvipontanean' rules without losing all point to the exercise. Rather, Sherwood seems to be arguing, we should treat an obligations consequence where the antecedent is impossible or the consequent necessary as an ordinary conditional according to scholastic rules for implication (which generally corresponds to strict implication rather than material implication). Spade's suggestion that obligations consequences are akin to counterfactual reasoning seems particularly apt for cases such as this where the *positio* is impossible (Paul Spade, "Roger Swyneshed's *Obligationes*: "Edition and Comments," *Archive d'histoire doctrinale et littéraire du moyen âge*, 44 [1977], 245). In any event, the fact that the treatises in question take pains to say that the Parvipontanean rules cannot be used in cases where the *positio* is impossible suggests that they accept the rule in ordinary contexts rather than that they are here without argument simply denying those rules as invalid.

[20] De Rijk 1974, p. 110.32–33; 1975, pp. 36.34ff.

[21] De Rijk 1974, p. 114.7–8; 1975, pp. 38.36ff.

[22] De Rijk 1975, pp. 35.4ff.

to, the self-referential character of insolubilia. And it is at least worth considering whether the general concern of these early treatises on obligations has to do with logical or semantic paradoxes based on some sort of reflexivity (often but not always produced by a reference in the argument to the evaluator of it) which resemble but are weaker than the self-referential paradoxes of the insolubilia in that they depend on the disputational context for their paradoxical character.

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Walter Burley on Obligations

Scholastic work on "obligations" has garnered increasing attention from historians of medieval philosophy. Although it is now clear that there was a long tradition of scholastic interest in obligations, it is still not clear what the nature of obligations is: it has been described variously as anything from schoolboy exercises[1] to primitive axiomatized logic.[2] As the rest of this article shows, I myself think that in the early fourteenth century at any rate obligations constituted a logic of disputation.[3]

Walter Burley's treatise on obligations,[4] stemming from the beginning of the fourteenth century, is a representative account of obligations in an early stage of their development, before the subtle shifts of emphasis in the work of Richard Kilvington,[5] one of the earliest of the

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[1] James Weisheipl, "Early Fourteenth-Century Physics and the Merton 'School' with Special Reference to Dumbleton and Heytesbury" (Ph.D dissertation, Oxford University, 1956), p. 150. For a brief survey of contemporary literature on obligations, see Paul Vincent Spade, "Roger Swyneshed's *Obligationes*: Edition and Comments," *Archive d'histoire doctrinale et littéraire du moyen âge*, 44 (1977), 243–285.

[2] Philotheus Boehner, *Medieval Logic: An Outline of Its Development from 1250–c. 1400* (Manchester: Manchester University Press, 1952).

[3] See also Eleonore Stump, "William of Sherwood's Treatise on Obligations," *Historiographia Linguistica*, 7 (1980), 249–264 [the preceding essay here] and "Obligations from the Beginning to the Early Fourteenth Century" in *The Cambridge History of Later Medieval Philosophy*, N. Kretzmann et al., eds. (Cambridge: Cambridge University Press, 1982), pp. 315–334. Portions of this essay are adapted from my *Cambridge History* chapter.

[4] Edited in Romuald Green, *The Logical Treatise 'De Obligationibus': An Introduction with Critical Texts of William of Sherwood (?) and Walter Burley* (St. Bonaventure, N.Y.: The Franciscan Institute, forthcoming). Because Green's work will not be published for some time, I have based my citations on the revised version of Green's dissertation, made available by the Franciscan Institute. References to the edition of Burley use Green's paragraph numbers.

[5] I am grateful to Norman Kretzmann, who is editing Kilvington's *Sophismata*, for calling my attention to the material on obligations in it.

Oxford Calculators, and before the enormous changes in obligations introduced by or represented in such philosophers as Roger Swyneshed[6] and other later fourteenth-century logicians. Consequently, Burley's treatise is fundamental for an understanding of the logic of obligations in the fourteenth century.

As is true in general of obligations treatises, Burley's work is set in the context of dialectical disputation, in the highly structured and stylized form the scholastics inherited from Aristotle's *Topics* via Boethius. The scholastics themselves tend to attribute the source for their work on the obligations to one or another or both of two Aristotelian passages.[7] The first, from *Topics* VIII 3 (159a15–24), says that the primary job of the respondent in a disputation is to answer in such a way that anything impossible which the respondent is compelled to defend is the fault of the position he maintains rather than the fault of his defense of that position. The second, from *Prior Analytics* I 13 (32a 18–20), says that from the possible nothing impossible follows. These two quotations together provide the theoretical foundation for obligations. If the respondent in a disputation adopts a position which is possible but is subsequently compelled to maintain something impossible (something logically incompatible with the position adopted or something impossible in its own right), then he has failed in his job as respondent. Nothing impossible follows from the possible; so, because it is possible, the position adopted by the respondent does not entail anything impossible. If the respondent is then logically compelled to maintain contradictory propositions, it must be because he has made logical mistakes in responding, so that the impossible, which is not entailed by the original position the respondent adopts, is entailed by the respondent's faulty defense of that position. The job of the interlocutor, called the 'opponent' in obligations disputations, is to trap a respondent into maintaining contradictories, and the job of the respondent is to avoid such traps. Burley's own main interest is in what might be called paradoxes of disputation. A paradox of disputation occurs when, after a seemingly unimpeachable exchange between an opponent and his respondent, the opponent proposes a proposition which the respondent can neither grant nor deny because either the granting or the denial leads immediately to a contradiction. The heart of Burley's treatise is a long series of such paradoxes, each accompanied by his solution to it.

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[6] See Spade 1977, and 'Obligations: Developments in the Fourteenth Century' in *The Cambridge History of Later Medieval Philosophy*. See also Eleonore Stump, "Roger Swyneshed's Theory of Obligations," *Medioevo*, 7 (1981) 135–174.

[7] Green, Intro.: Chapter II.

Overview of Burley's Obligations

Burley's treatise begins with an ordered division of obligations into six species[8]: *institutio, petitio, positio, depositio, dubitatio,* and *sit verum*. Burley's main interest is clearly in *positio,* and his examination of *positio* alone constitutes more than three-fifths of the entire treatise. I will say something briefly about these various species of obligations and then follow Burley in concentrating on *positio.*

Institutio is a new imposition for some utterance, giving it a new signification.[9] Burley's first example is this: 'let "A" signify a donkey in a true proposition, a man in a false proposition, and the disjunction 'a man-or-not-a-man' in an uncertain proposition [i.e., a proposition whose truth-value is not known to the respondent[10]]." Cases of *institutio,* like this one, frequently resemble or just are insolubilia: self-referential paradoxes.

For *institutio,* as for all the species, Burley has in mind three basic rules, which he says constitute the essence of the art of obligations. They are these:

(1) Everything which follows from (a) the *positum* with (b) a granted proposition or propositions or with (c) the opposite(s) of a correctly denied proposition or propositions, known to be such, must be granted.

(2) Everything which is incompatible with (a) the *positum,* with (b) a granted proposition or propositions, or with (c) the opposite(s) of a correctly denied proposition or propositions, known to be such, must be denied.

(3) Everything which is irrelevant (that is, every proposition to which neither rule (1) nor rule (2) applies) must be granted or denied or doubted according to its own quality, that is, according to the quality it has in relation to us (i.e., if we *know* it to be true, we grant it; if we *know* it to be false, we deny it; if we *do not* know it to be true or know it to be false, we doubt it).[11]

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[8] Ibid., Burley 0.02.

[9] Ibid., Burley 0.02 and 1.01.

[10] Ibid., Burley 1.03: *"Significet A asinum in propositione vera, hominem in propositione falsa, et hoc disiunctum: homo vel non homo, in propositione dubia."*

[11] Ibid., Burley 2.07: *"In omni obligatione ponuntur tres regulae generales, scilicet, quod omne sequens ad obligatum est concedendum, intelligendo per obligatum, concessum vel necessario*

Although Burley casts these rules in terms of the *positum,* the first proposition which the opponent puts forward to the respondent in a *positio,* they are meant to apply to all species of obligations, from *institutio* to *sit verum,* except for *depositio* and *dubitatio,* as I will explain later. These rules, together with the original definitions of the basic species of obligations, constitute obligations as can be seen in the examples that follow.

Petitio is the species of obligations in which the opponent asks or obligates the respondent to *do* something. In *positio,* the first proposition which an opponent asks his respondent to grant might be something such as 'Socrates is running.' In *petitio,* that same first proposition must be of the form "You respond affirmatively to the proposition 'Socrates is running,'" or "You respond negatively to 'Socrates is running,'" or something of the sort which makes reference to an action on the part of the respondent.

Sit verum is the species of obligations in which what is obligated always includes mention of your knowing, your not knowing, or your being in doubt.[12] So, for example, the first proposition put forward in a case of *sit verum* is not 'You are running,' or something of that sort, but rather 'You know that you are running,' or 'You do not know that you are running,' or 'You are in doubt whether you are running.'

Depositio and *dubitatio* are just like *positio,* except that while one is obligated to maintain the *positum* as true, one is obligated to maintain the *depositum* as false and the *dubitatum* as uncertain; and consequently there are basic rules for *depositio* and *dubitatio* different from the rules for any of the other species of obligations. So, for example, one of the rules for *depositio,* which is roughly analogous to rule (1) for *positio,* is

> (4) Every proposition antecedent to the *depositum,* taken by itself or with some correctly granted proposition or propositions, known to be such, is to be denied.[13]

That is, every proposition *p* from which the *depositum q* (with or without other previously maintained propositions) follows must be denied, because we are obligated to maintain the *depositum* as false; and if

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concedendum. Similiter, omne repugnans obligato est negandum. Similiter, ad impertinens respondendum est secundum sui qualitatem."

[12] Ibid., Burley 6.01ff.

[13] Ibid., Burley 4.02: *"Omne antecedens ad depositum per se vel cum bene concesso vel concessis, scitum esse tale, est negandum."*

we did not maintain p as false, we would (*per impossibile*) have a valid inference $p, \therefore q$ in which p was true and q was false.

For *dubitatio* a basic rule is this:[14]

(5) One should respond 'I am in doubt about it' (a) to any proposition convertible with the *dubitatum*, (b) to the contradictory of the *dubitatum*, (c) to any proposition following from the *dubitatum* if that proposition is false, and (d) to any proposition antecedent to the *dubitatum* if that proposition is true.[15]

Paradoxes

A typical paradox or sophisma involving *petitio* is this:

(E1) I request that you grant the king to be seated or not to be seated, in such a way that there is a disjunction of the *petitio*. Then I propose this to you: the king is seated. If you grant this, you grant what is uncertain while you are not obligated, because although you are obligated to grant the king to be seated or not to be seated, you are not obligated to grant the king to be seated. If you deny it, you deny what is uncertain while you are not obligated; therefore you answer badly. If you doubt it, then I propose this: 'The king is not seated.' If you grant it, you grant what is uncertain, to which you are not obligated, because although you are obligated to grant the king to be seated or not

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[14] Ibid., Burley 5.05: "*Unde regulae sunt istae: ad dubitatum et ad suum convertibile et ad suum contradictorium et ad suum consequens, si sit falsum, et ad suum antecedens, si sit verum, respondendum est dubie.*" The rules for *dubitatio* bear at least some resemblance to three-valued logic, and scholastic attempts to solve the problem of foreknowledge and free will by using three-valued logic are sometimes couched in obligations-terminology. For the use of obligations in such a context see, for example, Ferdinand of Cordoba, in Léon Baudry, *La Querelle des futurs contingents* (Paris: J. Vrin, 1950), p. 145. I am grateful to Anthony Kenny for the reference.

[15] The point of the rule seems to be this. Case (5a). If p and q are convertible, then they have the same truth-value. So if we assign a truth-value of true or of false to p, we are committed to assigning the same truth-value to q. Hence if we want to give the response "I am in doubt about it" to q, we will have to give the response "I am in doubt about it" to p. Case (5b). For similar sorts of considerations as those for Case (5a), if p and q are contradictories, we must give the response "I am in doubt about it" to p if we want to give that response to q. Case (5c). If q entails r, then we will have to deny q if we deny r. On the other hand, we ought not to grant r since it is by hypothesis false. Hence if we want to maintain q as uncertain, we ought to maintain r as uncertain also. Case (5d). If p entails q, then we ought not to grant p since doing so requires also granting q. On the other hand, we ought not to deny p since it is by hypothesis true. Hence if we want to maintain q as uncertain, we ought to maintain p as uncertain also. See Burley 5.04 for his spelling out of these reasons.

> to be seated, nonetheless you are not obligated to grant the king not to be seated. If you deny it, you deny what is uncertain, to which you are not obligated. If you doubt it, the disputation is over: it was requested that you grant the king to be seated or not to be seated, and you have done neither: therefore you have answered badly.[16]

We can schematize this *petitio* argument as follows:

Opponent	*Respondent*	*Reason*
(1) You grant the king to be seated or not to be seated.	(1a) T	(1b) (1) is the *petitum.*
(2) The king is seated.	(2a) ?	(2b) (2) is irrelevant and uncertain.
(3) The king is not seated.	(3a) —	

Because (2) neither follows from (1) nor is incompatible with it, (2) is irrelevant and must by obligations rule (3) be responded to according to its own quality which it has in relation to the respondent; and since the respondent in fact does not know whether or not the king is seated now, he responds by doubting (2). The difficulty in this sophisma is supposed to arise at (3a). As in the case of (2), (3) neither follows from nor is incompatible with what has been previously maintained. Therefore it is irrelevant, and so, just as in the case of (2), the correct response is apparently to doubt (3). But to doubt (3), in the context of the sophisma, is to end the disputation by responding in an obviously faulty way: having agreed to grant the king to be seated or not to be seated, you have in fact granted neither disjunct but instead doubted each.

Burley's solution to this sophisma is to say that the respondent *must* either grant that the king is seated or grant that the king is not seated, and the respondent should just choose arbitrarily to grant one or the other of the disjuncts. If the opponent objects to such a move, the

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16. Ibid., Burley 2.16: "*Aliud sophisma est: peto te concedere regem sedere vel non sedere; ita quod sit disiunctio petitionis. Deinde, propono tibi istam: rex sedet. Si concedas, concedis dubium, non obligatus. Quia et si sis obligatus ad concedendum regem sedere vel non sedere, tamen non es obligatus ad concedendum regem sedere. Si neges, negas dubium, non obligatus, igitur male. Si respondeas dubie, propono istam: rex non sedet. Si concedas, concedis dubium, ad quod non es obligatus, quia si sis obligatus ad concedendum regem sedere vel non sedere, non tamen es obligatus ad concedendum regem non sedere. Si neges, negas dubium, ad quod non es obligatus. Si respondeas dubie, cedet tempus, petitum fuit te concedere regem sedere vel non sedere, et neutrum fecisti, igitur male.*"

respondent can ask the opponent to specify the hypothesis further for this case and to stipulate the king's present position, so that the hypothesis will include a statement that in reality the king is seated, for example. If the opponent will not make such a stipulation, then the respondent should refuse to play, on the grounds that, in effect, this is an incoherent case of obligations, one which is structured in such a way as to generate an *insoluble* difficulty for the respondent.[17]

Our initial response to this sophisma and to Burley's solution is likely to be irritation at what appears to be a stupid and uninteresting confusion. Consider, after all, this disjunction: Reagan is in the White House now or Reagan is not in the White House now. It is perfectly possible for this disjunction to be true and for me to know that it is true, without my having any idea concerning the truth or falsity of either of the disjuncts. I may have no opinion at all about Reagan's whereabouts and still know for sure the truth of the disjunction that he is or is not in the White House. But Burley is not ignorant of such a possibility; and in connection with *positio,* as we shall see, he discusses cases in which a disjunction is to be granted although neither disjunct taken separately is to be granted.[18] What gives Burley pause in this particular case and what keeps him from solving *this* sophisma by saying simply that the disjunction is to be granted even though neither of the disjuncts is to be granted, I think, is primarily that this sophisma is supposed to be a case of *petitio,* not of *positio.* That is, the first proposition which the opponent puts forward in this case is *not* the disjunction 'The king is seated or the king is not seated,' as it would be if this were a case of *positio.* If it were a case of *positio,* then I think Burley would accept a response of "True" to the disjunction which is the *positum* and a response of "I am in doubt about it" to each of the two disjuncts put forward separately. But in *this* case the initial proposition is '*You grant* the king to be seated or the king not to be seated.' And the proposition 'You grant *p* or not-*p*' contains a scope ambiguity, or what medieval logicians considered an ambiguity between the compounded and divided senses of the proposition. The proposition (1) 'You grant the king to be seated or not to be seated' can be taken to mean either (1C) 'You grant (that the king is seated or the king is not seated),' which is the compounded sense of the proposition, or (1D) 'You grant that the king is seated, or you grant that the king is not seated,' which is the divided sense. I have translated (1) in

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17. Ibid., Burley 2.17.
18. Cf. ibid., Burley 3.68.

a way that I hope preserves the ambiguity, but even so our ordinary intuitive understanding of (1) consists in taking it as (1C), I think. Burley, on the other hand, plainly takes it as (1D) as he indicates by saying that this is "a disjunction of the *petitio*"; and taking it as (1D), does give rise to the worries of this sophisma. If you grant (1D), then you are maintaining that (i) you grant that the king is seated or (ii) you grant that the king is not seated; and in order for (1D) to be true, it must be the case that (i) is true or (ii) is true. But if in the course of the disputation you fail to grant that the king is seated and you fail to grant that the king is not seated, then neither (i) nor (ii) is true, and so (1D) is not true either. Hence, as Burley says, if (1D) is true, then you must grant either step (2) or step (3) of the original argument; that is, you must grant that the king is seated or you must grant that the king is not seated.

The bulk of Burley's treatise on obligations, however, is devoted to *positio*; and the following case is typical of examples of *positio*:

> (E2) And let this be posited: 'You are in Rome or that you are in Rome is to be granted.' Then let this be put forward: 'That you are in Rome is to be granted.' This is false and irrelevant, and therefore it must be denied. Then let this be put forward: 'That you are in Rome follows from the *positum* and the opposite of something correctly denied.' This is necessary because this conditional is necessary: 'If it is the case either that you are in Rome or that that you are in Rome is to be granted, and that you are in Rome is not to be granted, then you are in Rome.' Once this is granted, [namely], 'that you are in Rome follows from the *positum* and the opposite of something correctly denied,' then let this be put forward: 'That you are in Rome is to be granted.' If you grant [this], you have granted and denied the same thing, and therefore [you have responded] badly. If you deny it, the disputation is over; you have denied something which follows by a rule [of obligations]. Because if the rule is good, then this follows: 'That you are in Rome follows from the *positum* and the opposite of something correctly denied; therefore, that you are in Rome is to be granted.'[19]

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[19] Ibid., Burley 3.21: "*Et ponatur ista: tu es Romae vel 'te esse Romae' est concedendum. Deinde, proponatur: 'te esse Romae' est concedendum. Haec est falsa et impertinens, igitur neganda. Deinde, proponatur: 'te esse Romae' sequitur ex posito et opposito bene negati. Haec est necessaria, quia haec conditionalis est necessaria: si tu es Romae vel 'te esse Romae' est conceden-*

We can show the structure of this example in the following way.

Opponent	*Respondent*	*Reason*
(1) (i) You are in Rome or (ii) that you are in Rome is to be granted.	(1a) T	(1b) (1) is the *positum.*
(2) That you are in Rome is to be granted.	(2a) F	(2b) (2) is irrelevant and false.
(3) That you are in Rome follows from the *positum* and the opposite of something correctly denied.	(3a) T	(3b) (3) follows from the truth of (1) and the falsity of (2)
(4) That you are in Rome is to be granted.	(4a) —	

Trouble arises for the respondent at (4a), on Burley's view, in this way. The respondent cannot grant (4) since he has already denied the same proposition at (2a). On the other hand, he cannot deny (4) either. From (3) it follows that you are in Rome; and if it follows, it must be granted, and so (4) is true.

At first glance, Burley's solution to this paradox looks bizarre. On his view,

> It is said that this should be denied: 'That you are in Rome follows from the *positum* and the opposite of something correctly denied.' Nor is this [(3)] necessary. Even if it were necessary that it follows from the posited disjunction with the opposite of one of the disjuncts that you are in Rome, nonetheless it is not necessary that this disjunction be posited.[20]

But if we look again at (3) and the reasons given for granting (3), we should see that there is an important confusion. (3) does *not* follow from the truth of (1) and the falsity of (2), as (3b) alleges; (1i) follows (as Burley acknowledges), but (3) does not. Suppose we then consider (3) irrelevant and judge it on its own merits. According to Burley, we

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dum, sed 'te esse Romae' non est concedendum, igitur tu es Romae. Concessa ista " 'te esse Romae' sequitur ex posito et opposito bene negati", proponatur ista: 'te esse Romae' est concendendum. Si concedas, idem concessisti et negasti, igitur male. Si neges, cedat tempus, negasti sequens per regulam. Quia, si regula sit bona, tunc sequitur: 'te esse Romae' sequitur ex posito et opposito bene negati, igitur 'te esse Romae' est concedendum."

[20] Ibid., Burley 3.22: *"Dicitur quod haec est neganda: " 'te esse Romae' sequitur ex posito et opposito bene negati". Nec haec est necessaria. Et, si sit necessarium 'te esse Romae' sequi ex disiunctiva, quae ponitur, cum opposito alterius partis, tamen non est necessarium istam disiunctivam poni."*

ought to judge it false. If (3) read "that you are in Rome follows from the conjunction of this disjunction, namely, 'You are in Rome or that you are in Rome is to be granted,' with the denial of the second disjunct," then Burley would, I think, agree that (3) had to be granted. But (3) does not read that way; and if we are considering (3) as it stands, on its own merits, then Burley seems to think we should deny it because the phrase 'from the *positum*' *need* not refer to the particular disjunction which just happens to be the *positum* in this particular case of obligations. It *could* refer to some other *positum*; but unless it refers to *this* one, (3) is false. Therefore, on Burley's view, it is a mistake to grant (3).

This reading helps make Burley's solution intelligible, but it does not in fact resolve the paradox. Because suppose that we deny (3), on the rather dubious grounds that it is irrelevant and false in virtue of the ambiguous phrase 'the *positum*.' Then let (4) be put forward again. Remember that the reasoning for *granting* (4) in the paradox went like this: (3) that you are in Rome follows from the *positum* and the opposite of something correctly denied; therefore (4) that you are in Rome is to be granted. And what Burley attacks is *not* the inference from (3) to (4), but the truth of premiss (3). He seems to have in mind the mistaken notion that if (3) is false, (4) is false—hence we can deny (4) and the paradox is solved. But, of course, he has not solved the paradox by such means since (4) can be true even if (3) is false. Furthermore, if Burley is willing to accept the *inference* from (3) to (4), we can show him that on his own views (4) must be true. The inference from (3) to (4) depends on accepting as valid the inference from (1i) 'You are in Rome' to (4) 'That you are in Rome must be granted'; and there is some reason for accepting this inference in an obligations disputation. If the proposition 'You are in Rome' is true in an obligations disputation, it is to be granted. And so in an obligations disputation, the inference from *p* to '*p* is to be granted' is a good one. Or to put it another way, if the respondent must grant *p*, he must also grant that he must grant *p*.

Now consider step (4) of the argument, supposing for the moment that we have accepted Burley's argument and have denied (3) for the reasons he gives. Even with the denial of (3), however, from the truth of (1) and the falsity of (2), it follows that you are in Rome. And so, given the validity of the inference from (1i) to (4), from 'You are in Rome' it follows that 'You are in Rome' is to be granted. Hence even with the denial of (3), we are committed, on Burley's own views, to the truth of (4). And so even if we give Burley all he wants—the falsity of (3) and the validity of the inference from (3) to (4)—we can demonstrate that the paradox remains. The respondent is committed to the truth of (4) although he has correctly denied the same proposition at (2a).

The real solution to this paradox depends, I think, on considering at the outset the relations between the two propositions (1i), 'You are in Rome,' and (1ii) or (4), 'That you are in Rome is to be granted.' It will help in this discussion to take 'is true' as meaning 'is true in an obligational disputation' or 'must be granted by a respondent', and analogously for 'is false.' Now if (1i) is true, (1ii) is true, as I have already argued. And we can also show the converse, that if (1ii) is true, (1i) is true. If you grant (1ii), you are granting that (1i) is to be granted. But if you grant that (1i) must be granted, you cannot consistently deny (1i) and so you must also grant (1i). Hence, if (1ii) is true, so is (1i). Consequently, (1i) and (1ii) are logically equivalent. Now in the obligations paradox we are considering, the *positum*, which we are obligated to maintain as true, is a disjunction of (1i) and (1ii). But since (1i) and (1ii) are equivalent, the disjunction can be true only in case both (1i) and (1ii) are true, because

$$[(p \leftrightarrow q)\ \&\ (p \vee q)] \rightarrow\ (p\ \&\ q).$$

Hence, in this case, it is a mistake to consider (2) in the schematization of (E2) as irrelevant. In fact, it follows from the *positum* and the implicit logical relationship between (1i) and (1ii). And so (2) ought to be granted. In this way, I think, the paradox is really solved, or more accurately in this way the paradox fails to arise in the first place.

The Rule for Irrelevant Propositions

Burley's solution to this paradox is worth considering again for what it tells us about the rule for irrelevant propositions. On that interpretation, Burley is taking (3) as irrelevant; and so by the obligations rule for irrelevant premisses, he considers (3) on its own merits. But the way in which he does so suggests that he is taking the rule for irrelevant premisses in an extreme way, although his interpretation of it may well have been typical for his time. Burley's decision to judge (3) false stems apparently from his feeling that, after all, the phrase 'from the *positum*' which occurs in (3) could refer to just any *positum*. But, of course, it cannot if we remember that (3) is occurring within *this* obligations disputation. To feel the force of the ambiguity of the phrase 'from the *positum*,' it is necessary to wrench (3) out of its context in this disputation and to consider it altogether apart from the disputation in which it occurs. It is as if Burley took the obligations rule for irrelevant premisses to read in this way: If a proposition does not follow from or is not compatible with what has been previously maintained, it is irrelevant; and if it is irrelevant, then forget everything said in the disputation so far—in fact, forget that you are in an obligations disputation—and judge the irrelevant proposition as you would if you were not engaged in an obligations disputation. That is an extreme interpretation of the rule for irrelevant propositions, with significant implications for his entire understanding of obligations, as we can see a little more clearly by considering Burley's discussion of this paradox of disputation and a general rule of thumb for cases of *positio*:

> (E3) Another rule is this: if a contingent falsehood is posited, it is possible to prove any falsehood compossible with it, in this way. Let it be posited that you are in Rome. Then let [this] be put forward: 'You are not in Rome or you are a bishop.' This must be granted because it is true and irrelevant. Then [let this be put forward]: 'You are a bishop.' This follows, and in this way it is possible to prove any falsehood compossible with the *positum*.[21]

We can schematize this argument as before:

Opponent	*Respondent*	*Reason*
(1) You are in Rome	(1a) T	(1b) (1) is the *positum*
(2) You are not in Rome or you are a bishop	(2a) T	(2b) (2) is irrelevant and true
(3) You are a bishop	(3a) T	(3b) (3) follows from the truth of (1) and the truth of (2)

The purpose of this argument is to show that in obligations disputations it is possible to prove any falsehood compossible with the *positum*. In this particular case, Burley does so by taking as the second step in the argument a disjunction of a special sort. It does not follow from and is not incompatible with what has gone before and so is irrelevant; and it is constructed in such a way that only the first disjunct is true outside the disputation, but within the disputation (after the granting of the disjunction) only the second disjunct is true. Since the disjunction is irrelevant, it is judged on its own merits, apart from the obligations disputation; and on that basis, because of the truth of the first disjunct—'You are not in Rome'—the disjunction is accepted as true. Once accepted, however, the disjunction in conjunction with the *positum* allows the derivation of the second disjunct, (3), 'You are a bishop.' There are other ways in which to construct step (2) of this argument in order to achieve the same result; for example, Burley presents an alternative version of the argument with this as the second step: (2′) (a) That you are in Rome and (b) that you are a bishop have the same truth-value. Like (2), (2′) is irrelevant. Outside the disputation (2′) is true in virtue of the fact that (2′a) and (2′b) are both *false*. Within the disputation, (2′) in conjunction with the *positum* entails that (2′b) is *true*; and so the *positum* and (2′) entail the truth of (3), 'You are a bishop.' And in these ways we could construct other obligations arguments which would prove any falsehood compossible with the *positum*.

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[21] Ibid., Burley 3.61: "*Alia regula est ista: posito falso de contingenti, contingit probare quodlibet falsum sibi compossibile. Hoc modo: ponatur te esse Romae. Deinde, proponatur: tu non es Romae vel tu es episcopus. Haec debet concedi, quia vera et impertinens. Deinde: tu es episcopus. Hoc sequitur, et sic contingit probare quodlibet falsum contingens compossibile posito.*"

Burley gives a more thorough discussion of this example and the rule it is supposed to illustrate than he generally gives for his examples. He considers an interesting objection directed not against the rule but rather against the sort of argument used to illustrate the rule:

> (O) A disjunction is not true unless one or the other disjunct is true. Therefore, a disjunction is not to be granted unless one or the other disjunct is to be granted. But neither disjunct of the disjunction 'You are not in Rome or you are a bishop' is in the first place to be granted. For one disjunct [namely, 'You are a bishop'] is false and irrelevant, and the other disjunct [namely, 'You are not in Rome'] is incompatible with the *positum*. Furthermore, if this were posited: 'You are in Rome,' and this were [then] put forward: 'You are in Rome, and that you are in Rome and that you are a bishop have the same truth-value,' this [conjunction] would have to be denied—and not because of the conjunct 'You are in Rome,' therefore because of the conjunct 'that you are in Rome and that you are a bishop have the same truth-value.' Therefore, this [second conjunct] is to be denied in the first place, and so it is not proved by means of [this] rule that you are a bishop.[22]

[22] Ibid., Burley 3.67: "*Disiunctiva non est vera, nisi altera pars sit vera. Igitur disiunctiva non est concedenda, nisi altera pars sit concedenda, sed neutra pars huius 'tu non es Romae vel tu es episcopus' primo loco est concedenda. Nam una pars est falsa et impertinens, et alia pars est repugnans posito. Praeterea, si ponatur ista: 'tu es Romae', et proponatur ista: 'tu es Romae, et te esse Romae et te esse episcopum sunt similia', haec esset neganda, et non ratione huius 'tu es Romae,' igitur ratione huius 'te esse Romae et te esse episcopum sunt similia'. Haec igitur est neganda primo loco, et ita per regulam non probatur te esse episcopum.*"

This objection has two parts. The first has us consider step (2) of the argument in (E3). If *at* step (2) the opponent were to put forward the proposition 'You are a bishop,' it would have to be denied: it is irrelevant and false. If *at* step (2) the opponent were to put forward 'You are not in Rome,' it would also have to be denied because it is incompatible with the *positum*. So neither disjunct can be granted at step (2). But, the objector maintains,

(D) a disjunction is not to be granted unless one or the other of the disjuncts is to be granted.

And since at step (2), neither disjunct can be granted, the disjunction ought not to be granted either.

Burley dismisses this objection by denying principle (D), on which it depends. It is perfectly possible, Burley argues, to grant a disjunction even if neither one of the disjuncts is to be granted. He is right to deny the objector's principle, but I think he does not need to go so far in order to refute the objector's move. The objector's principle (D) is, after all, not strong enough to support his argument. In fact, in the argument of (E3), one of the disjuncts of the disjunction in question *is* granted, namely at step (3). What the objector needs to support his objection is the stronger principle

(D′) a disjunction is not to be granted at a particular step (*n*) of an obligations argument unless one or the other of the disjuncts is also to be granted at step (*n*) of that argument.

That (D′) can fail to be true is virtually guaranteed by the basic obligations rule for irrelevant propositions, on which the whole possibility of proving compossible falsehoods depends. Suppose, as in the argument of (E3), that the *positum* is of the form p, and the disjunction at step (2) is of the form $\sim p \vee q$ where q is irrelevant to p and false. The disjunction is irrelevant to the *positum*, and so will be judged apart from the obligations disputation. So considered, it will be true in virtue of the first disjunct since the *positum* is always not true. Hence the disjunction is true, and true in virtue of the truth of one of the disjuncts. But neither of the disjuncts can be granted *at* step (2) of the argument. The first disjunct, whose truth outside the disputation guarantees the truth of the disjunction, is not irrelevant if it is put forward separately at step (2); and so it has to be assessed within the disputation, rather than apart from it, as the disjunction is. And *within* the disputation, it is incompatible with the *positum* and so must be denied. The second disjunct is also irrelevant at step (2) and happens to be false, and so it cannot be granted *at* step (2) either, although *after* step (2) it must be granted. Hence, the rule for irrelevant propositions brings it about that a second and different set of criteria for determining the truth-value of propositions is sometimes brought into play in assessing the premisses of obligations arguments. In general, in obligations disputations, we assess the truth or falsity of propositions proposed by the opponent by considering them with regard to the false *positum* and other previously granted or denied propositions. But when a proposition is irrelevant, we assess it instead by considering only the state of affairs actually obtaining in the world as it now is. And if we construct a disjunction in just the right way, we can ensure that the truth-value of at least one of the disjuncts has to be assessed by differing criteria from those used to assess the truth-value of the whole disjunction if the disjuncts are put forward separately at the same step of the argument as the disjunction. In our example here, on the criteria used to assess the disjunction $\sim p \vee q$ at step (2), $\sim p$ is true, because the criteria require us to assess the disjunction apart from the obligations disputation since $\sim p \vee q$ is irrelevant, and outside the disputation $\sim p$ is true. (And it is only in virtue of the truth of $\sim p$ that $\sim p \vee q$ is true.) But if $\sim p$ is put forward separately, we assess it by a different set of criteria, assessing it *within* the disputation, and by those criteria $\sim p$ is false since it is incompatible with the *positum*. Furthermore, the rule for irrelevant propositions makes us assess q as *false* if it is put forward *at* step (2) of the argument. But if it is put forward *after* step (2), the rule for irrelevant propositions no longer applies; we assess q by different criteria from those we use if q is put forward at (2); and we judge q *true*. So the principle (D′), which is what the objector needs for his objection, is to be rejected as a principle for obligations; and what guarantees that (D′) will *not* hold in all cases is the rule for irrelevant propositions.

We can get further insight into the importance of this rule for irrelevant propositions and its significance for the function of obligations by considering the second part of objection (O). Suppose, the objector says, that at step (2) of the argument in (E3) we had this conjunction:

(2C) (a) You are in Rome, and (b) that you are in Rome and that you are a bishop have the same truth-value.

This conjunction, the objector maintains, would have to be denied if put forward at step (2); furthermore, it is to be denied *not* because of the falsity of (2Ca) but rather because of the falsity of (2Cb). And since that is so, the conjunct (2Cb) ought to be denied if it is put forward separately at step (2). What the objector seems to have in mind is this. (2Ca) is the *positum* and so must be granted. But if (2Ca) is true, it is true that you are in Rome, and since it is false that you are a bishop, it is false that 'You are in Rome' and 'You are a bishop' have the same truth-value. Therefore (2Cb) is false. And if it is false, it ought to be denied when it is put forward at step (2) of the argument.

We should by now be on our guard against the sort of inference in the last move of the objector's argument, namely, that since (2Cb) is false when we are evaluating (2C) as a whole, we ought to deny it if it is put forward separately at step (2) of the argument. That is, the objector in this last inference of his objection is relying on a tacit principle analogous to (D′):

> (C′) If a conjunction is not to be granted at step (*n*) of an obligations argument, one or the other (or both) of the conjuncts is (are) not to be granted at step (*n*) of that argument either.

As we saw, (D′) does not hold for all cases of obligations arguments because of the peculiar circumstances brought about by the rule for irrelevant propositions. And the same is true of (C′), as we can see if we return to the objector's evaluation of (2C).

The objector thinks that (2C) is false because (2Ca), as the *positum*, is true and consequently (2Cb) is false. But just how is he evaluating (2C) then? Surely not by any of the three basic rules of obligations. By the basic rules of obligations, (2C) is irrelevant. It neither follows from the *positum* 'You are in Rome' nor is incompatible with it. If it is irrelevant, however, it must be evaluated altogether on its own merits, apart from the obligations disputation in which it occurs. But evaluated on its own merits, its first conjunct (2Ca) is *false*. You are not in Rome. Furthermore (2Cb) is true; 'You are in Rome' and 'You are a bishop' are both false and so have the same truth-value. And Burley replies to the objector along just these lines. He says simply that (2C) is irrelevant and false in virtue of the falsity of (2C*a*), and so he defuses the objector's objection. We can see the invalidity of principle (C′) from Burley's correct assessment of (2C). The conjunction (2C) is to be denied at step (2) of the argument. If (2Ca) were put forward at step (2), however, it would have to be *granted*, since when it is presented separately, it is not irrelevant and is identical with the *positum*. Similarly, (2Cb) would have to be granted. Presented separately at step (2), it is irrelevant; and evaluated as irrelevant, it is true and must be granted. So in the correct evaluation of (2C), we have a counterexample to (C′): the conjunction must be denied at step (2) of the argument, but neither conjunct presented separately is to be denied at step (2). Here, as before, the counterinstances to (C′) depend on the rule for irrelevant propositions. Because of that rule (2Ca) is evaluated differently when considered separately at step (2) and when considered as part of (2C) presented at step (2). And (2Cb), which is accepted as true is presented separately at step (2) in virtue of being irrelevant, would have to be rejected as false if presented after (2C) because then it is no longer irrelevant and so is assessed by different criteria. Assessed *within* the disputation, (2Cb) is false because its negation is entailed by the *positum* and the denial of (2C).

Even if the objector's objection is based on an invalid principle and a confused evaluation of (2C), nonetheless I do not think that his objection is without philosophical interest. The objector has just cast (2C) in a form which is unfortunate for his purposes. We can help him out by recasting it as a conditional:

(2C′) If (a) you are in Rome, then (b) 'You are in Rome' and 'You are a bishop' have the same truth-value.

Like (2C), (2C′) is irrelevant, and evaluated as irrelevant, it is false. It is false that you are a bishop, so when (2C′a) is true, (2C′b) is false, and hence (2C′) as a whole is false. It is true to say of (2C′), then, as it is not true to say of (2C), that it is false not in virtue of the falsity of (a) but rather in virtue of the falsity of (b). Now remember that, on Burley's view, (b) is to be granted if presented separately at step (2) of the argument, because presented separately, it is irrelevant, and assessed as irrelevant, it is true. What (2C′) shows us is that if we were to continue to maintain the truth of the *positum* while evaluating (b) at step (2), we would evaluate it as *false*. It is only because the rule for irrelevant propositions in effect *interrupts* the obligations disputation and excises the irrelevant proposition entirely from its context in the disputation *before* it is evaluated that we are compelled to accept (b) as true if it is presented separately at step (2). The rule for irrelevant propositions, then, keeps the *positum* and all propositions previously granted or denied from exerting their influence over any propositions not entailed by or incompatible with one or more of them. That this understanding of the rule for irrelevant propositions is responsible for an incoherence in the theory of obligations was seen soon after Burley wrote his treatise. In the forty-seventh of his *Sophismata*[23] Richard Kilvington shows that on the basis of this rule we can derive contradictory propositions from the same *positum*. Much (but not all) of the work on obligations by the Oxford calculators seems aimed at trying to remove this incoherence.[24]

Conclusion

The role of Burley's rule for irrelevant propositions is enough to show us that obligations, at least at the stage represented by Burley's treatise, is not a logic of counterfactuals, though that is a role which has recently been suggested for them.[25] Instead, in Burley's work obligations is a complicated set of rules for consequences or inferences set in a disputational context, where the disputational context makes a difference to the evaluation of the inferences. Frequently, the complications arise because there is a reference in the premisses themselves to the evaluator of those premisses or to an action within the disputation (such as granting or denying something) by the evaluator. (E2) is an example of such a case; the validity of the crucial inference from (1i) to (1ii), for example, in (E2) depends on the disputational context. The analogous inference '*p*; therefore Socrates must grant *p*' or even 'Socrates is in Rome; therefore Socrates must grant that he is in Rome' is invalid.

But we need not have a reference in the premisses to the evaluator of those premisses to generate the difficulties of interest in Burley's obligations. Other characteristics of disputation, such as the passage of time, will do just as well. Consider, for example, this very simple disputational argument (which Burley presents in connection with a different issue to show that we must sometimes and without penalty grant an impossible proposition if it has *become* impossible in the course of the disputation):

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[23] See note 5. For a full exposition of this sophisma of Kilvington's, see Kretzmann's commentary on it in his forthcoming edition of the *Sophismata*.

[24] For a discussion of this work of Kilvington's and the subsequent work of other Oxford Calculators on obligations, see Stump 1981 and Paul Spade, "Three Theories of Obligations," *History and Philosophy of Logic*, 3 (1982), 1–32.

[25] See Spade 1982; for a thorough discussion of Spade's claim, see Stump 1981.

(E4) For example, let A be the instant at which the *positum* is posited. And let it be posited that it is A. Then let [this] be put forward: 'It is A.' This should be granted since it is the *positum* and yet it is impossible *per accidens.*[26]

Because A designates the instant at which the *positum* is posited, the proposition 'It is A' is true only at the instant at which the *positum* is posited. At any step of the argument after the first, the proposition 'It is A' is not only false but impossible, since it maintains in effect that an instant which is past (namely, instant A at any time after step (1) of the argument) is present. Nonetheless, the proposition 'It is A' is the *positum,* and so by the basic rules of obligations it must be granted whenever it is put forward in the disputation. And so this paradox arises solely in virtue of the passage of time, which must be taken serious account of in an obligations disputation as it need not be or even should not be in a straightforward logical evaluation of inferences outside the context of disputation.

What we have in Burley's obligations, then, is a concern with special sorts of difficulties in evaluating consequences or inferences as a result of the disputational context in which the inferences occur. What we have in the developments of obligations after Burley,[27] in the work of the Oxford Calculators and of late fourteenth-century logicians, is still obscure.

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[26] Burley 3.59: "*Verbi gratia: sit A: instans in quo ponitur positum. Et ponatur A esse. Et proponatur: A est. Hoc debet concedi, quia est positum. Et tamen est impossibile per accidens.*"

[27] For an excellent discussion of obligations after Burley, see the introduction to E. J. Ashworth's forthcoming edition of Paul of Venice's work on obligations in the series of volumes of his *Logica Magna,* Oxford University Press. I am grateful to Professor Ashworth for her generosity in supplying me with this material.

11

Roger Swyneshed's Theory of Obligations

The Problem

Although recent studies have done a great deal to aid our understanding of the complicated and often obscure medieval tradition of obligations,[1] there is still no general agreement about the purpose and function of obligations. Published characterizations range from claims that obligations are codified methods for examining students in logic[2] to arguments that they constitute one of the earliest known attempts at a logic of counterfactuals.[3] But there is a consensus about the description of obligations in the historical tradition up to the work of Roger

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[1] See, for example, L. M. de Rijk, "Some Thirteenth-Century Tracts on the Game of Obligation," *Vivarium*, 12 (1974), 94–123; 13 (1975), 22–54; and 14 (1976), 26–49; P. V. Spade, "Roger Swyneshed's 'Obligationes': Edition and Comments," *Archive d'histoire doctrinale et littéraire du moyen âge*, 44 (1977), 243–285; "Richard Lavenham's 'Obligationes,'" *Rivista critica di storia della filosofia*, 33 (1978), 225–242; "Robert Fland's 'Obligationes': An Edition," *Mediaeval Studies*, 42 (1980), 41–60; "Obligations: Developments in the Fourteenth Century," in *The Cambridge History of Later Medieval Philosophy*, ed. N. Kretzmann et al., (Cambridge: Cambridge University Press, 1982); P. V. Spade and Eleonore Stump, "Walter Burley and the *Obligations* Attributed to William of Sherwood," *History and Philosophy of Logic*, 4 (1983), 9–26; R. Green, *The Logical Treatise "De Obligationibus": An Introduction with Critical Texts of William of Sherwood (?) and Walter Burley"* (St. Bonaventure, N.Y.: The Franciscan Institute, forthcoming); Eleonore Stump, "William of Sherwood's Treatise on Obligations," *Historiographia Linguistica*, 7 (1980), 249–264; "Obligations: From the Beginning to the Early Fourteenth Century," in *The Cambridge History of Later Medieval Philosophy*; and "The Logic of Disputation in Walter Burley's Treatise on Obligations," *Synthese*, 63 (1985), 355–374; and "Consequences in Ockham's *Summa logicae* and Their Relation to Syllogisms, Topics, and Insolubles," in *Logos and Pragma, Essays on the Philosophy of Language in Honor of Professor Gabriel Nuchelmans*, ed. L. M. de Rijk and H. A. G. Braakhuis, (Nijmegen: Ingenium, 1987), pp. 141–159.

[2] See, for example, Allen Perreiah, "Obligationes in Paul of Venice's *Logica Parva*," *Analecta Augustiniana*, 45 (1982), 89–116.

[3] P. V. Spade, "Three Theories of 'Obligationes': Burley, Kilvington, and Swyneshed on Counterfactual Reasoning," *History and Philosophy of Logic*, 3 (1982), 1–32. I am grateful to Professor Spade for letting me see this article in typescript before it was published.

Swyneshed. Obligations during that period may be roughly described as written sets of fictive oral disputations in which the respondent "obligates" himself to maintain a certain view or attitude throughout the disputation. In the subsequent course of the disputation, the opponent attempts to maneuver the respondent into maintaining contradictories and thus answering badly and losing the disputation.

For Walter Burley, whose treatise on obligations[4] represents the state of the development of obligations just before the work of the Oxford Calculators, there are six species of obligations: *petitio, sit verum, institutio, positio, depositio,* and *dubitatio.*[5] These are distinguished both by the sort of statement with respect to which the respondent obligates himself and by the attitude he takes toward that statement. In *positio,* the paradigm species of obligations, the *positum* (the statement in this species with respect to which the respondent is obligated) is known to be contingently false, and the respondent obligates himself to it as true for the duration of the disputation. In *depositio,* the *depositum* is known to be contingently true, and the respondent must maintain it as false. In *dubitatio,* the *dubitatum* is a statement known to be contingently false or known to be contingently true which the respondent must maintain as doubtful; that is, he must respond to the *dubitatum* as if he did not know whether it was true or false. All the remaining three species of obligations are like *positio* except that the *obligatum* has a special character. In *petitio* it always specifies an obligational response on the part of the respondent; for example, a respondent might obligate himself to maintain as true a statement of the form 'You deny that Socrates is running' or 'You grant that Socrates is running.' In *sit verum* the statement obligated always includes a propositional attitude. It specifies that the respondent knows, does not know, or is in doubt about something. The *obligatum* is not, for example, 'Socrates is running' (as in *positio*) or 'You grant that Socrates is running' (as in *petitio*) but rather 'You know that Socrates is running,' 'You do not know that Socrates is running,' or 'You are in doubt whether Socrates is running.' Finally, *institutio* is a new imposition for some utterance, giving that utterance a new signification. A typical *obligatum* for this species is 'Let "God exists" signify that a man is a donkey.'

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[4] Edited in Green, forthcoming. It is possible that Burley wrote more than one treatise on obligations. The obligations treatise currently ascribed to Sherwood may be by Burley instead; see Spade and Stump, "Walter Burley."

[5] For a detailed examination of Burley's obligations, see Stump, "The Logic of Disputation."

Species	*Example of obligatum*	*Respondent maintains obligatum as*
positio	'Socrates is running'	true
depositio	'Socrates is running'	false
dubitatio	'You are seated'	doubtful
petitio	'You grant that Socrates is running'	true
sit verum	'You know that Socrates is running'	true
institutio	'"God exists" signifies that a man is a donkey'	true

There are three basic rules for all these species of obligations (except *depositio* and *dubitatio,* which have their own analogous rules):

(1) Everything which follows from (a) the *obligatum,* with (b) a granted proposition or propositions, or with (c) the opposite(s) of a correctly denied proposition or propositions, known to be such, must be granted.
(2) Everything which is incompatible with (a) the *obligatum,* with (b) a granted proposition or propositions, or with (c) the opposite(s) of a correctly denied proposition or propositions, known to be such, must be denied.
(3) Everything which is irrelevant (*impertinens*)—that is, every proposition to which neither rule (1) nor rule (2) applies—must be granted or denied or doubted according to its own quality as we know it (that is, we grant it if we know it to be true, we deny it if we know it to be false, and we doubt it if we neither know it to be true nor know it to be false).

Roger Swyneshed's treatise on obligations represents a radical break with this tradition in two significant ways. In the first place, he alters the basic rules for obligations to these:

(S1) Everything which follows from the *obligatum* must be granted.
(S2) Everything which is incompatible with the *obligatum* must be denied.[6]

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[6] For an edition of this treatise, see Spade, "Roger Swyneshed's 'Obligationes.'" Subsequent references to this treatise will be given by page and paragraph number in parentheses in the text or in the footnotes. Swyneshed's three rules are more complicated than I have indicated in these English versions of them, but the complication is irrelevant to my purposes in this essay. The complete Latin originals of these rules are quoted in the remainder of this note and in note 8 below.

(S1) *"Omne sequens ex posito sine obligatione ad hoc pertinente non repugnans positioni in*

(S3) Everything which is irrelevant—that is, everything to which neither rule (S1) nor rule (S2) applies[7]—must be replied to in accordance with the way in which it principally signifies (that is, if it is known to signify principally as is the case, it must be granted; if it is known to signify principally otherwise than is the case, it must be denied; and if it is known to signify principally uncertainly, it must be doubted).[8]

The major difference between these rules and the rules found in Burley is the greatly extended range of irrelevant propositions. Because *relevant* propositions in Swyneshed's rules are restricted to those that follow from or are incompatible with the *obligatum alone* (rather than from or with the *obligatum* and all previously granted propositions or the opposites of all correctly denied propositions) many more propositions are irrelevant under Swyneshed's rules than under Burley's. Furthermore, under Swyneshed's rules, a respondent's job at any step of an obligational disputation is greatly simplified. Rather than considering a proposed proposition's relations to all previous steps of the argument, a respondent need only consider whether it follows from or is incompatible with the *obligatum*. If it neither follows from nor is incompatible with the *obligatum*, it is irrelevant; and the respondent must reply to it as he would ordinarily outside the obligational disputation.

Furthermore, to these three basic rules Swyneshed adds two corollaries:

(S4) One need not grant a conjunction in virtue of having granted all its conjuncts;

(S5) One need not grant any disjunct of a disjunction in virtue of having granted that disjunction.[9] (Or, in Fland's formulation, 'A disjunction is to be granted both of whose disjuncts are to be denied.'[10])

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tempore obligationis est concedendum" (266, § 67).

(S2) "*Omne repugnans posito sine obligatione ad hoc pertinente non repugnans positioni in tempore positionis est negandum*" (266, § 68).

[7] "*Propositio impertinens est propositio non obligata, et propter obligatum nec est concedenda nec neganda*" (252, § 8).

[8] (S3) "*Nulla propositio impertinens scita ab aliquo sibi principaliter significare sicut est est neganda sine obligatione ad hoc pertinente nec scita significare principaliter aliter quam est est concedenda, nec scita significare principaliter dubie est neganda vel concedenda*" (256–7, § 31).

[9] (S4) "*Propter concessionem partium copulativae non est copulativa concedenda nec* (S5) *propter concessionem disjunctivae est aliqua pars eius concedenda*" (257, § 32).

[10] "*Disjunctiva est concedenda, cujus utraque pars est neganda*" (Spade, "Robert Fland's 'Obligationes,'" 45, § 17).

Subsequent medieval philosophers themselves felt that these two corollaries typified the sort of obligations propounded in Swyneshed's treatise. Robert Fland, for example, cites these two rules as characteristic of what he calls the "*nova responsio*" in obligations.[11]

This "*nova responsio*," as far as we now know, is found in full-fledged form first in Swyneshed's treatise. It raises at least three puzzles. First, how could anyone, and especially a skilled logician such as Swyneshed, maintain these two corollary rules, which appear to be denials of fundamental logical laws? And what considerations would motivate a philosopher to produce and adopt such rules in the first place? Second, why did the *nova responsio* arise at this time? There was clearly an explosion of interest in obligations among the Oxford Calculators.[12] Can we discern any trends or developments in the work of the Oxford Calculators which elucidate the *nova responsio*? Third, what are we to make of the fact that Swyneshed himself in his treatise on obligations does not abide by these new rules?

That Swyneshed appears to violate his own rules, and not just once but repeatedly, is indisputable. Consider the following example:

> Then let there be the following sophisma. Suppose a conjunction of this sort is posited: 'This is a man and this is a donkey'; and everything indicated by 'this' is a man. Then this is proposed: 'This is a donkey.' If it is denied or doubted, the disputation is over.
>
> But on the contrary: it is a conjunct of the conjunction posited; therefore, it must be granted.
>
> Once it is granted, this is proposed: 'This thing indicated is a donkey.' If that is granted, let this be proposed: 'A donkey is a man.' If this is denied, the disputation is over.
>
> But on the contrary, it follows from the *positum*; therefore, it must be granted. The premiss is proved because this follows: 'Everything indicated is a man; this thing indicated is a donkey; therefore, a donkey is a man.'
>
> So if 'This thing indicated is a donkey' is denied, this is proposed: 'This is a man.' This must be granted. Once it is granted, this is proposed: 'This is nothing other than this thing indicated.' This follows, for this follows: 'This is this; and this is nothing other than this thing indicated; therefore, this is this thing indicated.' If that is granted, then it follows that this thing indicated is a donkey, which was denied earlier.
>
> So if 'This is nothing other than this thing indicated' is denied, its contradictory is proposed: 'This is something other than this thing indicated.' Then it follows that this thing indicated is.

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[11] See Spade, ibid., 45, §§ 14–17.

[12] See Green, *The Logical Treatise*, for a partial list of Oxford Calculators who wrote on obligations.

Once that is granted, this is proposed: 'This thing indicated is a donkey.' If this is granted—on the contrary, the same thing is granted and denied within the disputation; therefore one has replied badly.

If 'This thing indicated is a donkey' is denied, the disputation is over. It follows from the things that have been granted. For this follows: 'This is a donkey; this is this thing indicated; therefore this thing indicated is a donkey.'[13]

To see that Swyneshed apparently violates his own rules in this argument, the diagram below will be helpful. In the diagram 'T' indicates the reply 'I grant it.' 'F' indicates 'I deny it,' and '?' indicates that no justification under the rules of obligations (or no reply justified by those rules) is available. Because the argument is complicated by the consideration of alternative moves, I will present the alternatives in the diagram with asterisked premiss numbers. Italicized premiss numbers indicate steps of the argument at which Swyneshed apparently does not abide by the new rules.

	Opponent	*Respondent*	*Reason for response*
Ia. 1.	This is a man and this is a donkey (where everything indicated by 'this' is a man).	1a. T	1b. 1 is the *positum.*
2.	This is a donkey.	2a. T	2b. 2 follows from 1.
3*.	This thing indicated is a donkey.	3*a. T	3*b. ?
4*.	A donkey is a man.	4*_a_. T	4*b. 4* follows from 1 and 3*.

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13. *"Sit ergo illud sophisma: Ponatur talis copulativa 'Hoc est homo et hoc est asinus'. Et omne demonstratum per ly 'hoc' est homo. Deinde proponitur illa 'Hoc est asinus'. Si negatur vel dubitatur, cedat tempus. Contra: Illa est pars copulativae positae. Igitur, concedenda. Qua concessa proponitur illa 'Hoc demonstratum est asinus'. Si conceditur proponatur illa 'Asinus est homo'. Si negatur, cedat tempus. Contra: Illud sequitur ex posito. Igitur, concedenda. Assumptum probatur. Nam sequitur: Omne demonstratum est homo; hoc demonstratum est asinus; igitur, asinus est homo. Ideo si negatur illa 'Hoc demonstratum est asinus', proponitur illa 'Hoc est homo'. Haec est concedenda. Qua concessa proponitur 'Hoc non est aliud quam hoc demonstratum'. Si conceditur, proponatur illa 'Hoc est hoc demonstratum'. Illud est sequens. Nam sequitur: 'Hoc est hoc; et hoc non est aliud quam hoc demonstratum; igitur, hoc est hoc demonstratum.' Si conceditur, tunc sequitur quod hoc demonstratum est asinus, quod prius erat negatum. Ideo si negatur illa 'Hoc non est aliud quam hoc demonstratum', proponitur ejus contradictorium 'Hoc est aliud quam hoc demonstratum'. Tunc sequitur quod hoc demonstratum est. Qua concessa, proponitur 'Hoc demonstratum est asinus'. Si conceditur, contra: Idem conceditur et negatur infra tempus. Igitur, male respondetur. Si negatur illa 'Hoc demonstratum est asinus', cedat tempus. Illa sequitur ex concessis. Nam sequitur: 'Hoc est asinus; hoc est hoc demonstratum; igitur, hoc demonstratum est asinus"* (276–277, § 105).

Ib.	1. This is a man and this is a donkey (where everything indicated by 'this' is a man).	1a. T	1b. 1 is the *positum*.
	2. This is a donkey.	2a. T	2b. 2 follows from 1.
	3. This thing indicated is a donkey.	3a. F	3b. ?
	4. This is a man.	4a. T	4b. 4 follows from 1.
	5*. This is nothing other than this thing indicated.	5*a. T	5*b. ?
	6*. This is this thing indicated.	6*a.T	6*b. 6* follows from 5*.
	7*. This thing indicated is a donkey.	7*a. T	7*b. 7* follows from 2 and 6*.
Ic.	1. This is a man and this is a donkey (where everything indicated by 'this' is a man).	1a. T	1b. 1 is the *positum*.
	2. This is a donkey.	2a. T	2b. 2 follows from 1.
	3. This thing indicated is a donkey.	3a. F	3b. ?
	4. This is a man.	4a. T	4b. 4 follows from 1.
	5. This is nothing other than this thing indicated.	5a. F	5b. ?
	6. This is something other than this thing indicated.	*6a*. T	6b. 6 follows from the denial of 5.
	7. This thing indicated is.	*7a*. T	7b. 7 follows from 6.
	8. This thing indicated is a donkey.	*8a*. ?	8b. 8 follows from 2 and 6*, but has already been denied at 3.

There are several problems with this argument. For instance, Swyneshed does not explicitly explain or justify responses (3*a), (5*a), and (5a) in terms of the basic rules for obligations; his reasons for thinking that (7) is needed in the argument and for judging that (7) follows from (6) are obscure; and his argument for granting (8) mistakenly includes a premiss from a rejected alternative argument. But what is important for my purposes here is that the responses and the arguments for the responses at steps (4*), (6), (6*), (7), (7*), and (8) all violate Swyneshed's first three rules of obligations. In each of these cases a statement is granted solely on the grounds that it follows from previously granted steps of the argument (either by themselves or in conjunction with the *positum*). Swyneshed's solution to the difficulty posed by (8) is obscure (perhaps in part because of textual difficulties);[14] but no matter how we read Swyneshed's solution, the most that can be said for it is that it accepts (5*) rather than (5) and attacks the argument for granting (7*). Swyneshed says nothing to indicate that he rejects the sort of inference used to warrant the granting of (4*), (6), (6*), (7), (7*), or (8); and the recurrence of similar arguments elsewhere in his treatise strongly suggests that he is not troubled by these apparent violations of his rules.[15] And yet according to his revised rules we should deny (4*) as irrelevant and false, since it neither follows from nor is incompatible with the *positum* and in reality is false, and the same is true for (7*) and (8). On the other hand, (6*), (6), and (7) should be doubted as irrelevant and uncertain. If the *nova responsio* originated with Swyneshed or even if he was simply one of the first to systematize it, how can we explain the fact that he himself seems not to adhere to it?

In order to deal effectively with the three puzzles I have raised, it is useful to consider the history of obligations immediately preceding Swyneshed's treatise. Burley's treatise on obligations, which is a model of the tradition Swyneshed was rejecting, was written in 1302. Ockham's discussion of obligations in his *Summa logicae* was written around 1324 and is still squarely within the tradition represented by Burley. The first break with that tradition, as far as we now know, occurs in Richard Kilvington's *Sophismata*, which was probably written around 1325.[16]

Kilvington's *Sophismata*

Kilvington's discussion of obligations occurs basically in his forty-seventh sophisma (S47), the penultimate sophisma of the book; but for a proper understanding of S47, we should see that this sophisma is part of a thematically connected group consisting of S45, S46, S47, and

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[14] See 277, §§ 106–108 and Spade's notes to these sections.

[15] See, for example, 257, § 32; 273–274, §§ 98–99, and 284, § 137.

[16] This work is being edited by Norman Kretzmann and Barbara Ensign Kretzmann with translation and commentary. I am grateful to Professor Kretzmann for giving me access to the edition and translation. I have used Kretzmann's translation here but have been free in revising it to emphasize the technical obligations terminology. For the dating of Kilvington's treatise, see Kretzmann's introduction. For the dating of Burley's treatise, see the introduction to Green's edition; and for the dating of Ockham's *Summa logicae*, see the introduction to the edition by P. Boehner, S. Brown, and G. Gál, (St. Bonaventure, N.Y.: The Franciscan Institute, 1974).

S48. Though obligations terminology in fact occurs throughout these four sophismata (and to a lesser extent throughout the *Sophismata*), the central concern of all four is not with obligations but with an apparent paradox concerning knowledge.

S45 poses this puzzle: suppose you see Socrates from a distance and do not know that it is Socrates; is it true that this is everything which is this? S46, which Kilvington introduces as similar to S45, is this: suppose that you see Plato and Socrates, who are altogether alike, at the same time and that you become confused and do not know which of them is which, although the one being pointed out to you is in the place where Socrates was before you got confused; is it true, then, that you know that this is Socrates? Kilvington's reply to S46 depends on claiming that one may doubt and know the same proposition. The point of S47 is to justify this apparently paradoxical claim:

> So if someone proposes a proposition in speech representing this proposition in thought: 'This is Socrates,' one would have to reply by doubting [the proposition proposed]. And yet it is compatible with this that the proposition in thought corresponding to [the proposition proposed] be known by you, as will be clear in the next sophisma [which is S47.][17]

Kilvington's reply in S47 does indeed depend on this principle, which the sophisma is designed to justify. In his solution to the sophisma Kilvington says, "But this does not follow: 'This proposition must be doubted by me; therefore this proposition is not known by me'; for a proposition must be doubted on an occasion when it is known, and so it must sometimes be doubted when it is not known by me whether it is known."[18] And according to Kilvington the difficult sophisma '*A* is known by you' (which is S48) can be solved by this sort of reply.[19]

Kilvington's innovative work on obligations, then, is done in the context of a larger issue, namely, the justification of the principles that the same proposition can be simultaneously doubted and known by the same knower and that it is possible for an individual not to know that he knows something. With that larger issue in mind, I want now to examine S47 in detail.

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[17] *"Unde si proponatur aliqua propositio in voce repraesentans istam in conceptu: 'Hoc est Socrates', respondendum foret dubitando. Et tamen cum hoc stat quod ista propositio in conceptu correspondens illi sit scita a te, ut patebit in proximo sophismate, quod est hoc"* (S46).

[18] *"His visis, respondeo aliter ad sophisma, dubitando istud sophisma 'Tu scis regem sedere' et dubitando istam similiter: 'Rex sedet'. Non tamen dico quod haec est mihi dubia: 'Rex sedet'. Nec sequitur "Haec propositio 'Rex sedet' est a me dubitanda; igitur haec propositio 'Rex sedet' est mihi dubia"; quia propositionem esse dubiam est propositionem esse non scitam. Sed non sequitur 'Haec propositio est dubitanda a me: igitur haec propositio non est scita a me'; quia propositio est dubitanda in casu quando scitur, et ideo est dubitanda aliquando quando nescitur a me utrum sciatur"* (S47).

[19] S47.

The question S47 raises is this. Suppose that we take as a *positum* 'If the king is seated, you know the king is seated; and if the king is not seated, you know the king is not seated.' Given that *positum*, is the sophisma sentence 'You know the king is seated' true? To answer the question, Kilvington gives two arguments, which can be schematized in this way.[20]

II. *Proof*

1. If the king is seated, you know the king is seated; and if the king is not seated, you know the king is not seated.	1a. T	1b. 1 is the *positum.*
2. You know the king is seated or you know the king is not seated.	2a. T	2b. 2 follows from 1 and the tautology 'Either the king is seated or the king is not seated.'
3. You do not know the king is not seated.	3a. T	3b. 3 is irrelevant and in reality true.
4. You know the king is seated.	4a. T	4b. 4 follows from 2 and 3.

III. *Disproof*

1. If the king is seated, you know the king is seated; and if the king is not seated, you know the king is not seated.	1a. T	1b. 1 is the *positum.*
2. You know the king is seated or you know the king is not seated.	2a. T	2b. 2 follows from 1 and the tautology 'Either the king is seated or the king is not seated.'
3. You do not know the king is seated.	3a. T	3b. 3 is irrelevant and in reality true.
4. You know the king is not seated.	4a. T	4b. 4 follows from 2 and 3.
5. It is not the case that you know the king is seated.	5a. T	5b. 5 follows from 4.

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[20] *"Tunc probatur sophisma sic. Tu scis regem sedere vel tu scis regem non sedere, sed tu non scis regem non sedere; igitur tu scis regem sedere. Maior patet per casum, et minor patet quia est vera non repugnans. Quod patet, nam ista non repugnant: 'Si rex sedet, tu scis regem sedere; et si*

What Kilvington's proof and disproof show us is that by the traditional rules for obligations we can generate a genuinely insoluble sophisma; neither the proof nor the disproof for this sophisma can be faulted. And what that apparently shows us is that the traditional rules are incoherent; they can be used to prove contradictories.[21] It is easy to see how the contradictories are generated in this case. For all practical purposes, we can take as the *positum* the disjunction at step 2 of the proof and disproof. That disjunction is incompatible with the conjunction of the proof's step 3 and the disproof's step 3; but by the traditional rules of obligations either conjunct taken singly is irrelevant to the disjunction and is in reality true. That is, (D) '(1) You know that the king is seated or (2) you know that the king is not seated,' neither entails nor is incompatible with 'You do not know the king is seated,' and the same can be said for (D)'s relation to 'You do not know the king is not seated'; but (D) *is* incompatible with (C) '(1) You do not know the king is seated and (2) you do not know the king is not seated.' Thus the combination of (D) with either (C1) or (C2) entails the denial of the other conjunct and consequently entails one or the other of the disjuncts. The proof takes as a premiss the second conjunct (C2) and derives the first disjunct (D1). The disproof takes as a premiss the first conjunct (C1) and derives the second disjunct (D2); and since (D1) and (D2) are contraries, (D2) entails the denial of (D1). In this way the correct application of the traditional rules of obligations leads to the proof of contradictories from the same *positum*, and thus there is an apparent incoherence in the rules.

Faced with this paradox, Kilvington proposes *three* different solutions. The third and weakest solution consists in claiming that only formal consequences are acceptable and that the two consequences in the *positum* are not formal (where by 'formal consequence' he seems to mean at least that the antecedent cannot be true without the consequent). Since on views of consequences then current all consequences

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rex non sedet, tu scis regem non sedere' et 'Tu non scis regem non sedere'. Ad oppositum arguitur sic. Tu scis regem non sedere; igitur tu non scis regem sedere. Antecedens patet, quia tu scis regem sedere vel tu scis regem non sedere, sed tu non scis regem sedere; igitur tu scis regem non sedere. Et per consequens sophisma est falsum. Et minor patet ut prius, quia est vera et impertinens" (S47).

[21] There are, of course, different ways of being incoherent and different ways of warranting contradictories. Burley's rules do not warrant contradictories in the same obligational disputation but rather warrant contradictories in two disputations, each starting with the same positum. For a thorough discussion of this issue, see Spade, "Three Theories".

are either necessary or impossible,[22] if the consequences that make up the *positum* are not acceptable, they are impossible. But only possible propositions may be posited, and therefore this *positum* ought to be disqualified from the outset. For complicated reasons[23] Kilvington himself rejects this solution. He is right to do so, I think, and for a simpler reason than any he offers: the entire paradox can clearly be generated from the disjunction at step 2 of the proof and disproof, so that we can dispense entirely with consequences such as those that constitute the *positum*, and generate the paradox simply by positing the disjunction. Whatever restrictions Kilvington may have attached to the positing of consequences, he gives no hint that he felt any similar compunctions about the positing of disjunctions.

Though he seems not to recognize the fact, Kilvington's second solution is equally weak. It takes this form. Arguments (II) and (III) depend crucially on the rule for irrelevant propositions and are analogous to this standard argument for demonstrating that all falsehoods compossible with the *positum* are provable:

IV.

1. You are in Rome.	1a. T	1b. 1 is the *positum*.
2. 'You are in Rome' and 'you are a bishop' are the same in truth-value	2a. T	2b. 2 is irrelevant and in reality true (since in reality both propositions are false).
3. You are a bishop.	3a. T	3b. 3 follows from 1 and 2.

Kilvington attempts to refute *this* argument by pointing out that since words signify only by convention and conventions may be altered at will, we can never validly argue "'p' is true; therefore, p" or "p; therefore 'p' is true." On these grounds, Kilvington rejects the inference from (1) and (2) to (3) in argument IV. Whatever else one may think about this attempted refutation, it is vitiated by the fact that it applies to only one method of showing the provability of compossible falsehoods. Against the method in which the second step of IV would be given as the disjunction 'You are not in Rome or you are a bishop,' Kilvington's refutation is useless; and it is just as impotent against the proof and disproof for S47.

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[22] See, for example, Swyneshed's discussion of this position in Spade, "Three Theories," 268, §§ 77–80.

[23] Kilvington's exposition of this attempt at a solution is complicated by counterproposals, replies to the counterproposals, etc. For the sake of brevity, I have given only the opening position of this attempted solution.

Kilvington's best solution consists in an attack on the traditional rule for irrelevant propositions. The rule itself is an obvious culprit in the generation of the paradox of S47, and it is essential to any argument attempting to show the provability of all falsehoods compossible with the *positum*.[24] In its traditional formulation, the rule brings it about that two incompatible sets of criteria for determining truth-values are sometimes brought into play in assessing obligational statements. If we construct a conjunction (or disjunction) in the right way, we can ensure that the individual conjuncts (or disjuncts) are assessed by criteria different from those used to assess the truth-value of the whole conjunction (or disjunction) when the conjuncts (or disjuncts) are put forward singly at the same step of the argument as the conjunction (or disjunction). So, for example, in the proof and disproof of S47, either conjunct of (C) put forward at step 3 of the argument is irrelevant; consequently, it is assessed outside the obligational context, and so assessed each conjunct is true. But the whole conjunction, put forward at step 3, is *not* irrelevant; consequently, it must be assessed within the obligational context. Assessed in that way, it is false, and so at least one of the conjuncts must also be false. Kilvington's other two solutions depended (respectively) on refusing to admit the sophisma's *positum* and on rejecting the inference from the *positum* and a premiss to the conclusion. His best solution employs the only remaining strategy of attack: denying the irrelevant premiss, or at least showing that the irrelevant premiss does not have to be granted. This strategy, however, requires revising the traditional rule for irrelevant propositions; and this is what Kilvington does, though frustratingly succinctly.

He begins with a general consideration:

> In another way, however, one should say in such cases that when 'You are in Rome' is posited and then "'You are in Rome' and 'You are a bishop' are the same in truth-value" is proposed, this proposed proposition ought to be denied. For supposing you are in Rome and not a bishop, this would not have to be granted: "'You are in Rome' and 'You are a bishop' are the same in truth-value"; and so the same proposition should be denied by you now.[25]

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[24] For more discussion of this point in connection with Burley's work, see Stump, "The Logic of Disputation," and Spade, "Three Theories."

[25] *"Aliter tamen dicendum est in talibus quando ponitur ista 'Tu es Romae' et deinde proponitur " 'Tu es Romae' et 'Tu es episcopus' sunt similia," neganda est haec propositio proposita. Quia te existente Romae et te non existente episcopo, non foret haec concedenda: " 'Tu es Romae' et 'Tu es episcopus' sunt similia"; et ideo nunc est eadem propositio neganda a te"* (S47).

In the immediately following passage, in which he applies this general consideration to the rule for irrelevant propositions, Kilvington does not express himself clearly (and there are textual difficulties besides):

> And when one argues 'This is true and irrelevant; therefore, this must be granted,' to this I say that speaking of what is irrelevant as [that term] is commonly understood—for a proposition that does not follow from or is not incompatible with the *positum* or a previously granted proposition, and the rest—this does not follow: 'This proposition is true and irrelevant; therefore, it must be granted.' But if this term 'irrelevant' is taken for a proposition which is now true and which would not be true in virtue of its being in reality as signified by the *positum*, then I say that this proposition "'You are in Rome' and 'You are a bishop' are the same in truth-value" is irrelevant to the *positum* 'You are in Rome.' Because if you were in Rome and were not a bishop, this would have to be denied: "'You are in Rome' and 'You are a bishop' are the same in truth-value."[26]

It is very unlikely that Kilvington meant to restrict irrelevant propositions to those that are now true, though the passage just quoted seems to give such an impression. If we therefore expand the account of irrelevant propositions along the lines Kilvington suggests, it would presumably take this form:

(K3) An irrelevant proposition is either (a) one which is now true but would not be true in virtue of its being in reality as is signified by the *positum* or (b) one which is now false but would not be false in virtue of its being in reality as is signified by the *positum*.

Even our expanded (K3), however, is not complete as an alternative to the traditional rule of obligations, both because it does not specify a *response* to irrelevant propositions and because it leaves out of account irrelevant propositions whose truth-value would not be altered "in virtue of its being in reality as is signified by the *positum*." Kilvington's practice in his examples and his purpose in altering the traditional rule together suggest that Kilvington means all irrelevant propositions to be given the responses which would be appropriate if the *positum* were true. Presumably, if an irrelevant proposition would not alter its truth-value "in virtue of its being in reality as is signified by the *positum*," then one's response to it within the disputation would be the same as one's response outside the disputation. A completed version of Kilvington's altered rule for irrelevant propositions would have to be something of this sort:

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[26] *"Et quando arguitur 'Ista est vera et impertinens; igitur ista est concedenda', ad illud dico quod loquendo de impertinenti ut communiter sumitur—pro propositione non sequenti vel repugnanti posito vel concesso, et ita de aliis—non sequitur 'Haec propositio est vera et impertinens; igitur est concedenda'. Si tamen accipiatur iste terminus 'impertinens' pro propositione quae nunc est vera et quae non foret vera ex hoc quod ita foret ex parte rei sicut significatur per positum, tunc dico quod ista propositio "'Tu es Romae' et 'Tu es episcopus' sunt similia" est impertinens huic posito, quod est 'Tu es Romae'. Quia si tu esses Romae et non esses episcopus, haec foret neganda: "'Tu es Romae' et 'Tu es episcopus' sunt similia"* (S47).

> (K'3) An irrelevant proposition is one which neither follows from nor is incompatible with the *positum* and/or previous steps of the argument. (a) If an irrelevant proposition would be true in virtue of its being in reality as is signified by the *positum*, it must be granted. (b) If it would be false, it must be denied. (c) If is not the case that it would be true and not the case that it would be false, then it must be responded to according to the quality (as far as we know it) which it has in reality now.

Kilvington no doubt confines himself to alternative (a) in formulating his altered version of the rule because it is *true* irrelevant propositions which are crucial to the sophisma and to arguments showing the provability of all falsehoods compossible with the *positum*.

This revised rule for irrelevant propositions, or that portion of it immediately useful for his purposes, Kilvington uses to solve S47 in this way:

> And that this sophisma ['You know the king is seated'] must be doubted is clear, because if the king is seated, you know that the king is seated; and if the king is not seated, you know that the king is not seated—by the hypothesis. But whether the king is seated or not seated must be doubted, and so whether you know the king is seated must be doubted. That this proposition 'The king is seated' must be doubted is clear in view of the fact that, on the basis of the hypothesis, it is no more to be granted than denied or distinguished [into different senses]. . . . [As far as the disproof goes] the minor premiss assumed must be doubted—namely, 'You do not know the king is not seated.' Because if the king is seated, you do not know that the king is not seated (by the hypothesis); and you must doubt the antecedent; therefore, you must doubt the consequent. And when one argues 'This minor premiss is true and irrelevant; therefore, it must be granted,' I say that in the first way of speaking about what is irrelevant the consequence is not acceptable. But in the second way of

speaking about what is irrelevant it must be *doubted* whether the minor is true and irrelevant.[27]

Kilvington, then, uses his revision of the rule for irrelevant propositions as a basis for *doubting* the third steps of the proof and disproof of the sophisma. He justifies his response in this way. Suppose the *positum* is true. Its truth entails nothing about whether the king is actually seated or not. So, by (K'3c), since you do not in reality know whether or not the king is seated, 'The king is seated' is in doubt for you. But since on the hypothesis it must be the case that you know the king is seated or you know the king is not seated, if it is also true that you doubt whether the king is seated, then it follows that you are in doubt whether you do not know the king is seated and whether you do not know the king is not seated. And if you doubt these premisses of the proof and disproof for S47, you must also doubt their conclusions, because if a truth-value were assigned to either of the conclusions, it together with the *positum* would entail truth-values for the premisses which are supposed to be doubted. The doubting of the conclusions of the proof and disproof, then, follows from the truth of the *positum* and the doubting of the minor premisses. In this way Kilvington solves the sophisma, siding neither with the proof of the sophisma sentence "You know the king is seated" nor with its disproof, but instead doubting it.

In this same way, Kilvington also blocks the traditional arguments showing the provability of all falsehoods compatible with the *positum*. Those arguments depend on an irrelevant premiss which typically has the form 'p and q have the same truth-value' or '$\sim p \vee q$', where p is the positum and q is irrelevant to p and false. The traditional rule for irrelevant propositions requires us to grant such premisses. (K'3), on the other hand, requires us to deny them because it evaluates these premisses on the assumption that p is true and that q is false and falls into the category of propositions specified in (K'3c). And so Kilvington solves the general problem of which this sophisma is a special, particularly interesting case, namely, that starting from any *positum* p by the traditional rules of obligations we can in two obligational disputations show q and $\sim q$ respectively, where q and $\sim q$ are propositions compossible with p. The *traditional* rule for irrelevant propositions was responsible for such arguments because it made it possible to apply two incompatible sets of criteria in evaluating steps of an obligational argument, one which was and one which was not influenced by the falsity of the *positum*. The mingling of these two sets of criteria in one disputation is what allows the proving of any falsehood compossible with the *positum*. So when $\sim pvq$ is evaluated as irrelevant, $\sim p$ is true and q is false; but once the disjunction is granted and brought into the disputational context $\sim p$ is false and q is true. Kilvington's *revised* rule for irrelevant propositions rules out the possibility of evaluating the same proposition by two incompatible sets of criteria; in the process it allows a broader range of propositions to be influenced by the falsity of the *positum*.

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[27] "*Et quod istud sophisma sit dubitandum apparet; quia si rex sedet, tu scis regem sedere; et si rex non sedet, tu scis regem non sedere—per casum. Sed dubitandum est utrum rex sedet vel non sedet, et ideo dubitandum est an tu scis regem sedere. Quod ista propositio 'Rex sedet' sit dubitanda patet eo quod ex isto casu non est magis concedenda quam neganda vel distinguenda. Et tamen, licet ista propositio sit dubitanda a te, non tamen est concedendum quod ista propositio 'Rex sedet' est tibi dubia. Unde iste terminus 'dubitandum a me' est superius ad istum terminum 'dubium mihi'. Ad argumentum concedendum est quod tu scis regem sedere vel tu scis regem non sedere. Sed minor coassumpta est dubitanda—scilicet, haec: 'Tu non scis regem non sedere'. Quia si rex sedet, tu non scis regem non sedere—per casum—et antecedens est dubitandum; igitur consequens est dubitandum. Et quando arguitur 'Ista minor est vera et impertinens; igitur est concedenda', dico quod primo modo loquendo de impertinenti consequentia non valet. Sed secundo modo loquendo de impertinenti dubitandum est utrum minor sit vera et impertinens*" (S47).

William Heytesbury's *Regulae*

The second chapter of William Heytesbury's *Regulae solvendi sophismata*, entitled *De scire et dubitare*, seems to be directed against Kilvington's last four sophismata,[28] at any rate, if Heytesbury in *De scire et dubitare* is not intentionally attacking Kilvington's own work, he is attacking something which is very like it. Examination of *De scire et dubitare*, then, gives us a sample of at least one reaction among the Oxford Calculators to Kilvingtonian ideas and so contributes to our picture of the historical background of Swyneshed's treatise.[29]

[28] I am grateful to Norman Kretzmann for first suggesting this idea to me and for sharing with me his corrected typescript of Linda Watson Robinson's text of *De scire et dubitare*, prepared from the Venice 1494 edition and selected manuscripts.

[29] This is true even if Weisheipl is right in claiming that the *Regulae* was written after Swyneshed's treatise, because it is unlikely that Heytesbury's views were unknown in Oxford until he produced the *Regulae* in 1335. Already by 1330 there is a record of Heytesbury as a fellow of Merton College (See C. Wilson, *William Heytesbury: Medieval Logic and the Rise of Mathematical Physics* [Madison: University of Wisconsin Press, 1960], p. 7); and the *Regulae* is not an esoteric work for select specialists but a textbook for beginning students, as Heytesbury himself explains in the Prologue. But, in fact, Weisheipl's argument about the relative dating of Heytesbury's *Regulae* and Swyneshed's treatise on obligations is not strong enough to support the conclusion that "we can be certain, therefore, that Roger [Swyneshed] wrote his two popular treatises on logic before 1335" ("Roger Swyneshed, O.S.B.," in *Oxford Studies Presented to Daniel Callus* [Oxford: Clarendon Press, 1964], p. 245). Weisheipl claims that since the first opinion on insol-

The opening sentence of *De scire et dubitare,* which expresses the theme of the whole chapter, shows the claim Heytesbury is at pains to prove here: " 'To know' is understood in many ways; but whether it is used strictly or broadly, nothing is known by anyone which is also in doubt for him".[30] This is a rejection of one of the principles around which Kilvington built his last four sophismata, on the basis of which he thought he could solve the paradox in sophisma S48 and (at least partially) for the sake of which he changed the traditional rule for irrelevant propositions. In the examples he gives, such as that in argument V below, Heytesbury is at pains to reject the other principle also, namely, that someone can doubt whether he knows something.

Heytesbury gives seven obligational arguments in support of the position he himself wants to reject, namely, that the same proposition *can* be both known and in doubt. Roughly summarized, these are the *posita* of those arguments:

(1) Suppose it is posited that you know that *A* is one or the other of these: 'God is' or 'A man is a donkey'; one of these you know to be true and necessary (namely, 'God is'), and the other you know to be false and impossible (namely, 'A man is a donkey'). And you do not know which of these is *A*.

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ubles discussed in the *Regulae* is the same as that adopted by Swyneshed, Heytesbury must have had Swyneshed's two treatises on logic in mind in writing the *Regulae*. But, of course, this argument is acceptable only in case (a) no one who wrote before Swyneshed and whose thought was accessible to Heytesbury held the opinion in question, (b) Heytesbury could have known of Swyneshed's opinion only from his treatise, and (c) Swyneshed's work on insolubles was written at the same time as his work on obligations. Since Weisheipl's is the only argument for dating the *Regulae* after Swyneshed's treatises, an opinion about the relative dating of the works of these scholastics should, I think, be held in abeyance. In fact, as this section of my paper will show, there is some evidence in *De scire et dubitare* on the other side of the issue. That chapter of the *Regulae* is concerned partly with obligations and clearly rejects Kilvington's innovation but does not seem aware of a *nova responsio* in obligations. A move like Swyneshed's occurs, as I will explain, in Heytesbury's chapter, but it is an isolated occurrence, with apparently no awareness that that move compels a break with traditional obligations, as Swyneshed's work shows that it does. All this is much more consonant with the *Regulae's* being prior to Swyneshed's treatise on obligations rather than the other way around. It is, of course, possible that despite the common prologue in the manuscript on which Spade based his edition of Swyneshed, there were originally two different treatises, one on obligations, and one on insolubles, which were written at different times, one shortly before and one shortly after Heytesbury's *Regulae*, but were afterwards combined into a single treatise.

[30] I am using the Robinson-Kretzmann transcription but will give references in parentheses in the text and footnotes to the Venice 1494 edition. " *'Scire' multis modis accipitur; sed sive dicatur proprie sive communiter, nihil scitur ab aliquo quod eidem est dubium*" (f.12va).

(2) Suppose it is posited that you know that *A* is the true one of these—indicating these contradictories which are in doubt for you: 'The king is seated,' 'No king is seated'—in such a way that you know that whichever one of these is *A* is true and that it alone is *A* and vice versa. And with this you know that *A* is the true one of these, but you do not know which of these is *A*, as you do not know which of these is true.

(3) Suppose it is posited that you know that this is this (indicating Socrates) and that you do not know that this is Socrates.

(4) Suppose it is posited that this is Socrates or Plato, but you do not know whether this is Socrates and you do not whether this is Plato.

(5) Suppose that you know what is indicated by the subject of this proposition 'This is a man,' and that you know that this proposition signifies exactly as its terms generally purport to signify, and that you know something to be a man, and that there is nothing which you doubt to be a man.

(6) Suppose there are three propositions—*A*, *B*, and *C*,—of which you know two (namely, *A* and *B*) and are in doubt about the third, *C*. And you do not know which of the three *A* and *B* are, and it is hidden from you which of these you are in doubt about.

(7) Suppose it is posited that yesterday you saw Socrates, and you know up till now that the man you saw yesterday is Socrates; you see Socrates now and it is hidden from you whether it is Socrates, but rather you believe that the man whom you now see is Plato (and you see no one but Socrates).

Using these seven *posita*, Heytesbury constructs obligational arguments on behalf of the opposing position. Several of these arguments are strongly reminiscent of Kilvington's sophismata. The argument associated with (2) is very similar to Kilvington's S47, and (5) examines the issues of S47 on the basis of a different example. (3) is reminiscent of S45; (4) resembles S46; and (6) is related to S48.

Most of *De scire et dubitare* is devoted to showing that the arguments based on the *posita* (1)–(7) are unacceptable and to developing in the process some general principles about the compounded and divided senses of expressions. Throughout the chapter Heytesbury's often reiterated thesis is that it is impossible for the same proposition to be simultaneously known and doubted by the same person. And his concluding remarks contain an explicit rejection of Kilvington's innovation in obligations, the revised rule for irrelevant propositions (although without naming Kilvington):

> In this material the respondent benefits especially from paying careful attention not only to the content of the hypothesis assumed but also to its words and to their order and examining the difference which quickly decides between the compounded and divided sense, and *from replying to no irrelevant proposition differently because of the hypothesis than he would reply apart from the hypothesis.*[31]

There is no space here for a detailed examination of Heytesbury's disagreements with Kilvingtonian ideas, but for present purposes it is sufficient to see that Heytesbury opposes the general principle informing Kilvington's last four sophismata and the main idea behind Kilvington's new approach to obligations. In S47, however, Kilvington does expose an incoherence in the rules for obligations, and to reject Kilvington's solution is not to resolve the incoherence. If Heytesbury is unwilling to accept a Kilvingtonian solution, does he have an alternative suggestion of his own? In his consideration of the first opposing argument in *De scire et dubitare,* there is some indication that he does.

The first opposing argument attempting to show that someone can doubt that he knows something can be schematized this way.

V.

1. You believe firmly that the king is in London.	1a. T	1b. 1 is the *positum.*
2. The king is in London.	2a. D	2b. 2 is irrelevant and in reality is in doubt for you.
3. You know that the king is in London.	3a. D	3b. No response is open to you but the doubting of 3.[32]

The reasons for thinking that at V (3a) there is no correct response other than doubting are these:

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[31] *"Maxime autem in hac materia promovet responsalem ut non solum sententiam sed quod verba casus suppositi necnon illorum ordinem diligenter attendat et examinet diversitatem quae discernat velociter inter sensum compositum et divisum, et quod ad nullam propositionem impertinentem aliter respondeat propter casum quam faceret absque casu"* (f.16va).

[32] *"Ponatur quod credas firmiter sine haesitatione quod rex est Londonis. Tunc proponatur ista 'rex est Londonis'. Et cum in rei veritate sit tibi dubia et impertinens, sequitur quod illam habes dubitare. Sed ex tibi dubio in casu illo tu scis quod rex est Londonis. Non enim poteris tunc bene negare quod tu scis regem esse Londonis, quia sequitur per te: rex est Londonis, et credis firmiter absque haesitatione quod rex est Londonis; igitur scis quod rex est Londonis. Major est tibi dubia et minor est casus. Igitur consequens non est a te negandum, nec etiam concedendum, quia falsum et impertinens; igitur dubitandum. Et sic sequitur quod tu dubitas an scias quod rex est Londonis, quod fuit probandum"* (f.13vb).

(3bi) (3) follows from (1) and (2); (1) is known by you to be true, but (2) is in doubt for you. Since, however, the consequence is acceptable and the antecedent is in doubt for you, you cannot deny the consequent—if you denied the consequent, you would have to deny the antecedent as well.

(3bii) You cannot claim V (3) to be irrelevant and then on that basis grant it, because considered as irrelevant it is false.

And in this way the opposing argument seems to have shown "that you doubt whether you know that the king is in London." I have fleshed out the meager statement of (3bii) in the text in the only way that seems reasonable. The text itself says only "and it [(3)] must not be granted because it is false and irrelevant." The general point of that remark seems to be this. If we consider (3) within the disputational context, we cannot deny it; but neither can we grant (3) by trying to claim it as irrelevant, because considered as irrelevant (3) is false. So we can neither deny nor grant (3), and therefore we must doubt it.

(3bi) includes the logical principle on which Kilvington's solution to S47 depends; he defends it explicitly near the beginning of S47:

> Since this proposition 'You know the king is seated' is a consequent *ut nunc* to 'The king is seated' on the hypothesis, therefore if with regard to the same instant this proposition 'You know the king is seated' were proposed to you, you would have not to deny this. I prove the consequence: because otherwise it would follow that with regard to some instant of reply some consequence would be good and the antecedent would have to be doubted and the consequent denied—which does not appear reasonable.[33]

In response to argument V, Heytesbury grants the *positum*, V (1), and agrees that one ought to doubt V (2), 'The king is in London.' But instead of doubting V (3), as the opposing position does, Heytesbury denies it on the grounds that it is irrelevant and false. And so he also denies the principle in (3bi), which purportedly guarantees that the doubting of V (3) is entailed by the admitting of V(1) and the doubting of V (2). The section of the text in which Heytesbury rejects that principle is worth quoting in full.

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[33] "*Cum haec propositio 'Tu scis regem sedere' sit consequens ad istam ut nunc 'Rex sedet', per casum, igitur si pro eodem instanti proponeretur tibi haec propositio 'Tu scis regem sedere', ista non foret a te neganda. Consequentiam probo, quia aliter sequeretur quod pro aliquo instanti responsionis aliqua consequentia foret bona, et antecedens foret dubitandum et consequens negandum—quod non apparet conveniens*" (S47).

> And this consequence is not acceptable: 'such a proposition follows from the hypothesis and a proposition in doubt for you; therefore it must not be denied by you.' Instead, although it follows from the hypothesis and a proposition known by me, nevertheless with regard to the hypothesis it would have to be denied [by me]. So, for example, if this proposition is posited to me 'I am in Rome,' then this proposition 'You are in Rome' follows from the hypothesis and a proposition known by me, because this follows: 'I am in Rome, and you are in the same house in which I am; therefore, you are in Rome.' And nevertheless this proposition 'You are in Rome' proposed in the first place would have to be denied. Hence it does not follow, nor is it a rule that if a consequence is good and known by you to be good and the antecedent is in doubt for you, that the consequent must not be denied by you. Nevertheless, where a consequence is known by you to be good and you have responded by doubting the antecedent, and the consequent is altogether irrelevant to the hypothesis as well as to all other granted or denied [propositions] (if there were any up to that point), then the consequent must not be denied. But with regard to the proposed antecedent (that from which it follows that you know the king is in London), it is *not* in doubt for you, although one conjunct is in doubt for you and the other follows from the hypothesis. For you know that the whole conjunction is false, because you know well that that hypothesis is false. For although it is supposed that you believe without hesitation that the king is in London, nevertheless in reality you know that you do not believe this. And so the argument is not successful.[34]

Without giving clear reasons for doing so, Heytesbury here rejects the principle in its Kilvingtonian version, though he does accept a revised version of it which specifies that the whole antecedent, and not just a part of it, must be in doubt. And he rejects the argument that V (3) must not be denied, on the grounds that only a part and not the whole of the antecedent of V (3) is in doubt, claiming that the whole

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34. "*Et non valet talis consequentia: talis propositio sequitur ex casu et una propositione tibi dubia; igitur illa non est a te neganda. Immo quamvis illa sequitur ex casu et una propositione scita a me, ipsa tamen in casu esset neganda. Sicut posita mihi hac propositione 'ego sum Romae', tunc illa propositio 'tu es Romae' sequitur ex casu et una propositione scita a me. Quia sequitur: 'ego sum Romae et tu es in eadem domo in qua ego sum; igitur tu es Romae'. Et tamen illa propositio 'tu es Romae' primo loco proposita esset neganda. Unde non sequitur nec est regula quod si consequentia sit bona et scita a te esse bona et antecedens sit tibi dubium, quod consequens non est a te negandum. Ubi tamen consequentia est scita a te esse bona et responsum est tibi dubitando antecedens et consequens est omnino impertinens tam casui quam omnibus aliis concessis vel negatis, si qua fuerunt huiusmodi pro tunc, consequens non est negandum. Sed in proposito antecedens, illud ex quo sequeretur quod tu scis quod rex est Londonis, non est tibi dubium, quamvis una pars sit tibi dubia et alia sequitur ex casu. Scis enim quod tota copulativa est falsa, quia tu scis bene quod ille casus est falsus. Quamvis enim supponatur quod credas sine haesitatione quod rex est Londonis, tamen in rei veritate scis quod tu non sic credis. Et ideo non procedit argumentum*" (ff. 13vb–14ra).

antecedent is in fact not in doubt but rather known to be *false*. The whole antecedent consists of the conjunction of V (1) and V (2), where V (1) is the *positum* and V (2) is an irrelevant proposition in doubt for you. But, according to Heytesbury, "you know that the whole conjunction is false because you know well that the hypothesis is false."

The issue under discussion here is what response a respondent must give to V (3). According to the opposing position, the respondent has no alternative but to doubt V (3) because the doubtfulness of V (3) is entailed by the doubtfulness of the antecedent. Heytesbury counters by claiming that the antecedent of V (3) is false, and so V (3) is also false—by contraposition in this particular case since V (3) entails V (1) and V (2). But why would Heytesbury judge the antecedent of V (3)—the conjunction of V (1) and V (2)—to be false? Because, he says, *in reality* you know that you do not believe that the king is in London. The phrase 'in reality' marks the evaluation as occurring outside the disputational context, and only irrelevant propositions are so evaluated. Hence, without explicitly saying so, Heytesbury is adding the conjunction of V (1) and V (2) as a step in the argument—call it V (2')—and is judging V (2') as irrelevant. Evaluated as irrelevant, V (2') is indeed false because of the falsity of the conjunct which is the *positum*.

This move of Heytesbury's has important implications. If we enter V (2') as a step in the argument following V (2) and then deny V (2'), we will have denied a conjunction after having granted one of its conjuncts and doubted the other. And since Heytesbury says he would take the same approach if V (2) were a proposition known by him to be true, he is clearly willing to allow the denial of a conjunction whose conjuncts have all been granted. This amounts to Swyneshed's first corollary—(S4) 'One need not grant a conjunction in virtue of having granted all its conjuncts'—though Heytesbury does not describe his move in this way or show any awareness of it as an established but controversial innovation in obligations.

Furthermore, Heytesbury's move entails (biconditionally) a change in the traditional obligational rules (1)–(3). If we follow the pattern of Heytesbury's move whenever we want to evaluate a step (S) in the argument as following from (or incompatible with) previous steps, we must first conjoin all those previous steps and evaluate their conjunction outside the disputational context. Either such a conjunction includes the *positum* and/or something derived from the *positum*, or it does not; if it does not, all the previous steps are irrelevant propositions, and so (S) is also irrelevant. Suppose, for example, that we have as previous steps only irrelevant propositions such as 'You are an animal,' 'You are rational,' and 'You are mortal,' which together entail 'You are a man.' If the previous steps are indeed irrelevant, then 'You are a man' must be irrelevant also since anything that entailed 'You are a man' or its contradictory would entail the truth or falsity of at least one of the preceding irrelevant propositions. Consequently, (S) can be evaluated either as irrelevant or as following from previous steps in the argument. The response will be the same in either case. On the other hand, suppose the conjunction entailing (S) (or its contradictory) contains the *positum* and/or something derived from the *positum*. Then we enter that conjunction as a step in the argument. If it is composed *entirely* of steps derivable from the *positum*, then the conjunction will also follow from the *positum* (by the principle of distribution). Consequently, (S) (or its contradictory), which is entailed by the conjunction, will itself follow from the *positum*. If, however, the conjunction is composed of the *positum* and *irrelevant* propositions, then according to Heytesbury's move it is judged outside the disputational context and (because the *positum* is always false) is false. But if the conjunction entailing (S) is false, we cannot use a response to that conjunction as grounds for a response to (S) because to do so would be to commit the fallacy of denying the antecedent. Hence in this case (S) again has to be evaluated as irrelevant. The result of Heytesbury's move, then, is that for any step (S) of the argument, either (S) (or its contradictory) follows from the *positum* or (S) is irrelevant. And this result is equivalent to Swyneshed's revised rules (S1)–(S3) for obligations, although Heytesbury shows no sign of making or using a recognized and controversial alteration of the traditional rules.

In fact, there are several indications that Heytesbury is not dependent on Swyneshed for this move of his. Writers whose works are unquestionably after Swyneshed's treatise on obligations and who are sympathetic to Swyneshed's views, such as Robert Fland and Richard Lavenham, dismiss out of hand inferences like that from V (1) and V (2) to V (3) on the grounds that they violate Swyneshed's corollary (4).[35] Heytesbury makes no reference to such a rule but rather argues laboriously for his rejection of the inference to V (3). Furthermore, he gives no justification for claiming that the conjunction of V (1) and V (2) is irrelevant to the *positum* V (1) and so is irrelevant *simpliciter*.

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[35] For Fland, see, for example, Spade, "Robert Fland's 'Obligationes,'" 56–57, §§ 76 and 81; for Lavenham, see, for example, Spade, "Richard Lavenham's 'Obligationes,'" 231, § 13 and 233, § 16.

On the contrary, he seems not even to recognize that his move commits him to a new rule for irrelevant propositions. In the one place in this section in which he spells out what he means by 'irrelevant,' he does so in the way required by the old, traditional rule: "irrelevant to the hypothesis (*positum*) as well as to all previously granted or denied [propositions]." These considerations suggest, though of course they do not prove, that *De scire et dubitare* was written before Swyneshed's treatise on obligations. To see whether these suggestions are right or simply misleading would require a careful and thorough study of all the obligational arguments in Heytesbury's work.[36]

[36] Heytesbury discusses obligations in two other places. The first is a *Casus obligationis* attributed to Heytesbury. I am very grateful to Professor John Murdoch, who was kind enough to send me a photocopy of Oxford Bodl. *Canon. Lat.* 278, ff. 70–72, which includes the *Casus*, and to Professors Stephen Brown and Girard Etzkorn, who very graciously sent me copies of their transcriptions of ff. 70va–vb which comprise the *Casus*. The work exists in two other manuscripts as well, Venice San Marco Z. *Lat.* 310 (1577), f. 96va–vb and *Vat. Lat.* 3038, ff. 37v–39r (Wilson, *William Heytesbury*, p. 206), which I have not been able to check. In Oxford Bodl. *Canon. Lat* 278, the *Casus* is just an abbreviation of *De scire et dubitare*. Casus I and its response are equivalent to the seventh principal argument and its response in that chapter of the *Regulae*. Casus II and its response are just like the second principal argument and its response. Casus III corresponds to the fourth principal argument; the response to III is a considerably abbreviated version of the response in the *Regulae*. Casus IV and its response correspond to the sixth principal argument and its response. Casus V is just like the fifth principal argument; its response is a severely abbreviated version of Heytesbury's long and complicated response to the fifth principal argument. In every case, the *Casus* excerpts and abbreviates the text in the *Regulae*; though there are some discrepancies between the two, these seem to me minor. There is also a short discussion of obligations in Heytesbury's treatise on the compound and divided senses. (I am grateful to Norman Kretzmann for calling this passage to my attention). In that place, Heytesbury makes plain both his repudiation of Kilvington's innovation in obligations and his own allegiance to the traditional view of obligations:

"*Ideo omnino oportet advertere in hac arte sicut in quacumque obligatione quid est sequens et quid [re]pugnans, quia ad omnem propositionem impertinentem primo loco propositam respondendum est sicut responderetur ad eandem omnino si nullus casus esset positus. Accidit tamen frequenter quod propositio primo loco [pro]posita est impertinens omnino, sed in secundo et tertio loco satis pertinens est. Quia forte ex illa cum opposito bene negati sequitur oppositum casus vel oppositum sequentis ex casu vel oppositum prius concessi. Et ideo forte in tali loco proposita quamvis fuerit prius dubitanda erit ista simpliciter concedenda vel neganda. Ideo diligentissime est advertendum posito quocumque casu et proposita aliqua propositione in aliquo uno sensu vel in alio numquid sit ipsa pertinens vel impertinens, non solum prima vice vel alia qua proponitur sed quandocumque fuerit concessa vel negata. Quia postquam concessa fuerit semel vel negata erit magis pertinens quam infra . . . Si volueris exemplum in prius dictis satis patet qualiter sit eadem propositio primo loco proposita in casu dubitanda vel neganda, in secundo vero vel tertio loco concedenda. Verbi gratia, ponatur ista disiunctiva: 'Rex sedet vel tu es Romae'. Tunc si proponatur illa 'Rex sedet' cum ipsa sit dubitanda et impertinens debet dubitari. Deinde proponatur illa 'Tu es Romae'. Cum ipsa sit falsa et impertinens debet negari. Et tunc si proponatur iterum ista 'Rex sedet' debet concedi cum ipsa sit sequens ex posito cum opposito bene negati. Quia bene sequitur 'Rex sedet vel tu es Romae, sed tu non es Romae, igitur rex sedet'. Consequentia est bona, quia*

Finally, it is worth considering Heytesbury's move in connection with the paradigm argument purporting to demonstrate the provability of all falsehoods compossible with the *positum* to see how it compares with the positions held by Burley, Kilvington, and Swyneshed.

VI.

1. You are in Rome.	1a. Burley Kilvington Heytesbury Swyneshed	T	1b. (1) is the *positum*.
2. 'You are in Rome' and 'you are a bishop' are the same in truth-value.	2a. Kilvington	F	2b. Kilvington: (2) is irrelevant and by (K'3) is false.
	Burley Heytesbury Swyneshed	T	Burley, Heytesbury, Swyneshed: (2) is irrelevant and in reality is true.
3. You are a bishop.	3a. Burley	T	3b. Burley: The truth of (3) follows from the truth of (1) and (2).
	Kilvington	F	Kilvington: The falsity of (3) follows from the truth of (1) and the falsity of (2).
	Heytesbury Swyneshed	F	Heytesbury, Swyneshed: Since the conjunction of (1) and (2) is false, (3) is irrelevant; and in reality (3) is false.

Heytesbury's move, then, does constitute a solution to the problem raised by Kilvington in S47; and, like Kilvington's solution, Heytesbury's move has the virtue of blocking *any* argument attempting to demonstrate the provability of all falsehoods compossible with the *positum*. Any such argument must proceed by combining the *positum* with an irrelevant proposition, and Heytesbury's move will always

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arguitur a tota disiunctiva cum destructione unius partis super alteram partem, quomodo arguendo est bona consequentia, etc." (1494 edition, f. 4ra–rb).

reject such a combination as false. Furthermore, Heytesbury's move is more elegant than Kilvington's solution. Kilvington's solution consists in an ad hoc change of the rules, but Heytesbury's move amounts simply to applying the traditional rules strictly. Every step in the argument must be expressed explicitly and judged; if steps are combined and something is inferred from their conjunction, that conjunction itself must be listed as a step in the argument and evaluated. Once the rules are rigorously applied in this way, it becomes clear that all three traditional rules of obligations are wrongly or at least misleadingly expressed, because, as I showed above, any step in the argument will either follow from the *positum* or be irrelevant. Hence, the phrases 'from previously granted or denied propositions,' etc. are vacuous, and the three traditional rules of obligations can and should be revised to read as do Swyneshed's (S1)–(S3).

Roger Swyneshed: The Puzzle

With this background it is much easier to deal with the puzzles posed by Swyneshed's obligations. Swyneshed's two corollaries, which Fland takes as characterizing the new response, are not denials of logical laws, but apply to conjunctions composed of a false *obligatum* and true irrelevant propositions and to disjunctions composed of the contradictory of a false *obligatum* and false irrelevant propositions. If proposed separately, the conjunct which is the *obligatum* must be granted, and so must any conjunct which is irrelevant and true: but the whole conjunction is irrelevant and false in virtue of the conjunct which is the *obligatum*. Similarly, a disjunction composed of the contradictory of the *obligatum* and a false irrelevant proposition is itself irrelevant, on Swyneshed's view (indicating that Swyneshed, like virtually every other medieval logician, would reject material implication); and considered as such, it is *true* in virtue of the disjunct which is the contradictory of the *obligatum*. Either of the disjuncts, however, must be rejected if proposed separately, one because it is irrelevant and false and the other because it is the contradictory of the *obligatum*. The corollaries, then, do not deny the logical laws that the truth of all the conjuncts entails the truth of their conjunction and that the truth of a disjunction entails the truth of at least one of the disjuncts; rather they specify just what we have to *grant* in an obligational context when we have committed ourselves to maintaining as true a false conjunct of a conjunction (or the contradictory of a true disjunct of a disjunction).

The motivation for adopting these corollaries should be clear from the preceding discussions of the work of Heytesbury and Kilvington. Evidence for this interpretation of Swyneshed is given partly by the way in which Swyneshed proves his two corollaries:

> The first corollary is proved in this way. Let *a* be a conjunction composed of the false *obligatum* and an irrelevant proposition signifying principally as is the case. Let *b* be that *obligatum*. Then once the conjuncts have been granted, the whole conjunction is irrelevant to the *obligatum* [and] known to signify principally otherwise than is the case. Therefore, it is to be denied. . . . The second corollary is proved in this way. Let *c* be the opposite of such a conjunction, *b* being the *obligatum* as before. The argument proceeds in this way. The disjunction *c* is the opposite of a denied conjunction; therefore it must be granted.[37] And that each disjunct must be denied is clear. For one disjunct is the opposite of the *obligatum b*; therefore, it must be denied. And the other disjunct is an irrelevant proposition signifying principally otherwise than is the case; therefore it must be denied.[38]

And in another place Swyneshed defends corollary (S4) by claiming that a proposition which follows from two others would not follow unless those two others were in fact conjoined (pp. 260, § 41–261, § 43); hence any conclusion follows only from the conjunction of its premisses, and that conjunction must itself be explicitly evaluated.

The effect of Swyneshed's revisions of obligations is to isolate the falsity of the *obligatum*. The traditional rules established two incompatible sets of criteria for evaluating an obligational proposition and allowed the two sets to mingle. The mingling of those criteria made it possible to prove all falsehoods compossible with the *obligatum* and consequently generated incoherent results. Kilvington's solution makes it impossible to have two incompatible sets of criteria, with the result that a much narrower range of propositions is considered irrelevant in the sense that their truth-value is not affected by the *obligatum*.

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[37] Note the apparent violation of Swyneshed's first revised rule of obligations (S1) in this first inference.

[38] "*Prima pars conclusionis probatur sic: Sit* a *una copulativa facta ex obligato falso et impertinente significante principaliter sicut est. Sit* b *illud obligatum. Tunc concessis istis partibus tota copulativa est impertinens obligato scita principaliter significare aliter quam est. Igitur, neganda. Consequentia patet per secundam suppositionem. Secunda pars conclusionis probatur sic: Sit* c *oppositum talis copulativae,* b *existente obligato sicut prius. Et arguitur sic:* c *disjunctiva est oppositum copulativae negatae. Igitur, illa est concedenda. Et quod utraque pars sit neganda patet. Nam una pars est opposita* b *obligato. Igitur, illa est neganda. Et alia est impertinens significans principaliter aliter quam est. Igitur, est neganda*" (p. 257, §32). For very similar explanations on Swyneshed's part, see, for example, the argument in pp. 282, § 130–283, §135; arguments depending on one or another of the corollaries are scattered throughout the treatise.

Swyneshed's solution to the problem takes the opposite form. He allows two sets of criteria for evaluating obligational propositions; but because of his two corollary rules, the different sets of criteria are not allowed to mingle. Consequently, the proving of false compossibles is again blocked but in such a way that a much broader range of propositions is irrelevant, that is, not influenced by the falsity of the *obligatum*.

We are now left with the third of the puzzles with which I began, namely, why Swyneshed apparently does not follow his own rules. In the example of Swyneshed's arguments which I gave earlier, there were six inferences which seemed to violate the rules of the *nova responsio*, because the conclusion of each of those six inferences is warranted in virtue of following from something other than the *positum* alone. If it is true, however, that the point of Swyneshed's innovations is to keep the *positum* and whatever it entails from being combined with any irrelevant propositions, we can see that these inferences are only apparent and not real violations of Swyneshed's rules.

For example, I (4*) follows from the conjunction of the *positum* and I (3*). The response for I (3*) is given no justification in the text; and in fact the difficulty with the third step of the argument apparently arises because one could argue that either the granting or the denial of I (3*) follows from the *positum*. Presumably the respondent who chooses to grant I (3*) would warrant his response as following from the *positum*, on the grounds that one of the conjuncts of the *positum*, namely, 'This is a donkey,' entails I (3*) 'This thing indicated is a donkey.' But then I (4*) follows from the conjunction of the *positum* and something which follows from the *positum*; and so I (4*) follows from the *positum*. Hence, contrary to appearances, the inference to I (4*) does not violate Swyneshed's rules. And this will be the case whenever a conclusion is derived from a set of propositions each of which is either the *positum* or derived from the *positum*.

The inference from I (5*) to I (6*) is harder to explain, because a warrant for the response to I (5*) is harder to decide on. If I (5*) follows from the *positum*, the inference to I (6*) is on a par with that to I (4*). If I (5*) is a tautology, then it follows from anything; and, again, the justification of the inference to I (4*) applies to the inference to I (6*). What if I (5*) is irrelevant to the *positum*, however? In that case, if I (5*) is true, I (6*) is irrelevant and true also. And we can express our warrant for granting I (6*) by saying either that it is irrelevant and true or that it follows from I (5*).

In short, the only inferences which the *nova responsio* rules out are those from premisses which combine irrelevant propositions with the *positum* and/or propositions derived from the *positum*. Inferences from irrelevant propositions alone or from the *positum* with or without any other propositions entailed by the *positum* are compatible with the rules of the *nova responsio*. In this way, we can explain a good deal of otherwise incongruous practice not only on Swyneshed's part but also on the part of other logicians sympathetic to the *nova responsio*.[39]

Roger Swyneshed: An Evaluation

One further point is perhaps worth making about Swyneshed's obligations. The *nova responsio* blocks the proving of all falsehoods compossible with the *obligatum* and thus resolves the paradox pointed out by Kilvington. We may think, then, that Swyneshed's work on obligations is a considerable improvement on traditional obligations as represented in Burley's work. But any evaluation of Swyneshed's theory of obligations would be incomplete without an examination of Swyneshed's tendency to allow a second *obligatum* in any obligational disputation. For example, in constructing an argument with 'You are in Rome or a man is a donkey' as the *positum*, Swyneshed midway through the argument introduces as a *second positum* 'You are not in Rome'; and from that point in the discussion the two *posita* must be maintained together, as if at that point in the discussion the *positum* had become 'You are in Rome or a man is donkey; and you are not in Rome.'[40] With this device of a second *positum*, Swyneshed reintroduces all the defects of Burley's account or more. Consider, for example, the following pair of obligational arguments.

VII.

1. Every citizen of Rome is running.	1a. T	1b. (1) is the *positum*.
2. You are a citizen of Rome.	2a. T	2b. (2) is a second *positum*.
3. You are running.	3a. T	3b. (3) follows from the two *posita*.

VIII.

1. Every citizen of Rome is running.	1a. T	1b. (1) is the *positum*.

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[39] For an example of an apparent violation of the rules in someone other than Swyneshed, see, for example, Lavenham's *Obligationes*; in the argument which runs from p. 231, § 13 to p. 232, § 14, Lavenham makes this inference: "*Sed cum ista copulativa, videlicet, 'Omnis homo currit et tu es homo' sit neganda* [since it is irrelevant and false], *oportet quod suum contradictorium sit concedendum, videlicet, 'Non omnis homo currit vel tu non es homo'* ".

[40] For examples of second *posita* see, for example, p. 275, § 102 and p. 273, § 98.

2. You are not running.	2a. T	2b. (2) is irrelevant and in reality false.
3. You are a citizen of Rome.	3a. ?	3b. Either (3) is now impossible and so cannot be admitted as a second *positum*, or we can admit contradictories in the same disputation (since from the two *posita* would follow the denial of (2)).

If we can admit the second *positum after* 'You are not running' in VIII, we will have contradictories within the same disputation since VIII (1) and (3) entail 'You are running.'[41] If we cannot, we will nonetheless have a recurrence of the original problem which concerned Kilvington, because we have 'You are running' granted in one disputation and denied in the other when both disputations begin with the same *positum* and are conducted correctly according to the rules of obligations. As in Burley's obligations, the order of the propositions matters; and depending on the order in which the propositions are proposed, it is again possible to prove all falsehoods compossible with the *positum*, as VII shows. That this is the effect of allowing more than one *positum* should be no surprise. What Burley's rule for irrelevant propositions does in effect is to add arbitrarily to the *positum* at randomly chosen stages of the disputation, and thus the effects of the rule are the same as those of allowing second *posita*. Swyneshed, having rejected Burley's rule for irrelevant propositions, reintroduces all its effects with his device of second *posita*. Why Swyneshed should have chosen to allow second *posita* is not clear.

The Purpose and Function of Obligations

It is appropriate, I think, to conclude this essay with some comments on the purpose and function of obligations. Recently it has been claimed that obligations in all periods of medieval philosophy were a logic of counterfactuals. On this view, the *obligatum* is the antecedent of a counterfactual, and an obligational argument shows what would follow if the *obligatum* were true:

> One might describe such a [obligational] disputation as incompletely specifying—but more and more completely as the disputation progresses—a class of possible worlds in which the positum is true but that otherwise differ as little as

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[41] Spade, "Three Theories."

> possible from what, for all the respondent knows, the actual world is like; for every obligational disputation with positum *A* in which *B* is conceded or $\sim B$ denied, there is a true (and assertable) counterfactual $A \Box\!\!\rightarrow B$, and for every such disputation in which *B* is denied or $\sim B$ conceded, there is a true (and assertable) counterfactual $A \Box\!\!\rightarrow B$.[42]

If this interpretation is evaluated with respect to the variety of obligations represented by Kilvington's S47, we could perhaps give it a cautious assent. Kilvington's innovation in the rules for obligations does appear to make obligations resemble a logic of counterfactuals,[43] though if my interpretation of his revised rule for irrelevant statements is correct, we would have to be able to evaluate counterfactuals before we could use his method for evaluating counterfactuals. But the answer for other authors, such as Burley, and Swyneshed, is, I think, a definite No.

Perhaps the most important reason for this negative answer concerns the provability of all falsehoods compossible with the *positum*, which is guaranteed by Burley's rule for irrelevant statements and Swyneshed's device of second *posita*. On Swyneshed's and Burley's theories, we can begin with a possible false proposition *A* as the *positum* and in two separate disputations prove *B* and $\sim B$ respectively for *any and every* pair of contradictory propositions each of which is compossible with *A*. The false member of the pair is proved as in IV or VII; the true member of the pair is added as irrelevant. Suppose, for example, *A* is 'I am standing' (when in fact I am sitting). From this we can "prove" all of the following in the same or separate disputations depending on whether or not they are compossible among themselves:

(1) Verdi and Bizet are both Italian.
(2) Verdi and Bizet are not both Italian.
(3) New York is in Georgia.
(4) New York is not in Georgia.
(5) The moon is made of green cheese.
(6) The moon is not made of green cheese.
(7) God exists.
(8) God does not exist.

That we can prove (1)–(8) from 'I am standing' makes it incontrovertibly clear that (a) an obligational disputation does *not* specify (incompletely or otherwise) a class of possible worlds in which the *positum* is true but that otherwise differ as little as possible from what the actual world is like; and (b) it is *not* the case that there is a true counterfactual $A \square\!\!\rightarrow B$ for every obligational disputation in which B is proved on the basis of the *positum* A. A world in which I am standing rather than sitting and in which (1), (3), (5) and either (7) or (8) (depending on one's views) is true is not a world in which the *positum* is true but which otherwise differs as little as possible from what the actual world is like. Furthermore, according to our ordinary intuitions, all the counterfactuals composed of 'I am standing' as the antecedent and one of (1)–(8) as the consequent are *false*. But if obligations were a logic of counterfactuals of the sort described above, the *obligatum* A would have to entail counterfactually not only *all* of (1)–(8) but also all other contradictory pairs of propositions each member of which was compossible with A. Given this fact, it is clear that what we have in Burley's and Swyneshed's theories of obligations is not a "theory of counterfactuals with problems,"[44] but no theory of counterfactuals at all.[45]

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[42] Spade, "Three Theories."

[43] For further discussion of this point, see Stump, "Obligations: From the Beginning," and Spade, "Three Theories." The point that Kilvington's S47 resembles logic of counterfactuals was first raised by Norman Kretzmann in an unpublished lecture "Obligations and Counterfactuals."

The philosophical concerns that Swyneshed's examples suggest are diverse. Scholastics themselves tended to associate obligations with insolubles,[46] and that interest is reflected in the list of Swyneshed's *obligata*. They also reflect concern with epistemic logic, indexicals, propositional attitudes, and other issues in the philosophy of language. And this diversity of interests suggest some methodological reflections on questions such as, 'What is the true purpose and function of obligations?' If by such a question we are asking what part of contemporary philosophy obligations is the medieval counterpart of, there may be no answer. Medieval philosophy, and perhaps medieval logic in particular, does not map neatly onto contemporary philosophy. If, on the other hand, we are asking what recognizable branch of medieval philosophy obligations belongs to, the answer may vary from one period or author to another; and for certain authors there may be no clear answer. That this is not a peculiarity of medieval philosophy is clear. If we ask what branch of philosophy contemporary concern with indexicals belongs to, the answer will range from philosophy of religion or metaphysics to philosophy of language or epistemology, depending on the concerns of the individual philosopher examining the subject.[47] And if we ask how to classify Castañeda's early papers on indexicals,[48] it may not be possible to give an unambiguous answer.

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[44] Spade, "Three Theories."

[45] Spade makes the additional claim that scholastics understood the nature of their enterprise as work on counterfactuals and intended to contribute to a study of the logic of counterfactuals. For example, he says, "It might be argued that this situation shows that Burley did not intend his theory as an account of counterfactuals at all. But in virtue of the evidence presented in 3, I think it more likely that he did so intend it" (ibid). The evidence against this claim seems to me overwhelming. First of all, the evidence against Spade's first claim presented in the text of this paper counts against this additional claim, too. Second, although someone might think of *positio* and *depositio* (and just conceivably *dubitatio*) as belonging to a logic of counterfactuals, no one could seriously propose such an account of the remaining species of obligations, *petitio*, *impositio* (or *institutio*), and *sit verum*. The *obligatum* in *petitio* and *sit verum* is a specification of a certain propositional attitude or obligational response on the part of the respondent to a particular proposition; and the *obligatum* of *impositio* is the imposition of a familiar expression on an unconventional meaning, such as the imposition of 'God exists' on the ordinary meaning of 'A man is a donkey.' If *impositio*, too, were a logic of counterfactuals, we would have to suppose that the scholastics were interested in showing what the world would be like if 'God exists' meant that a man is a donkey; and such a supposition is obviously highly implausible. Therefore, to maintain that *positio* is a logic of counterfactuals requires maintaining that in their treatises on obligations scholastics intended to work on counterfactuals and on something completely different (of some sort or other), all of which they lumped together in one treatise, without differentiation. Finally, there are features of obligations which this interpretation cannot explain. The nature of the *obligata*, which are supposed on this interpretation to be antecedents of counterfactuals, is very different from what one would expect in examples of counterfactuals. On our ordinary understanding of counterfactuals, they express contingent propositions about the actual world. This is not

The case is similar for obligations. The very early history of obligations is still obscure, but by Burley's time, as I have argued else-

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the case with Swyneshed's obligational examples, even when the *obligata* are combined with subsequent obligational steps into conditionals, as the following partial list of *obligata* shows:

(1) The expression 'to be a man' signifies that a man exists (Spade, "Roger Swyneshed's 'Obligationes'," p. 262, § 53);

(2) The expression 'God exists' signifies that a man is a donkey (p. 264, § 58);

(3) 'a' is 'God exists' or 'A man is a donkey' and you do not know which of these is 'a' (pp. 268–9, § 81);

(4) 'You run' is posited to you (pp. 270–1, § 89);

(5) Nothing is posited to you (p. 271, § 91);

(6) This is a man and this is a donkey (p. 276, § 105).

The list of Swyneshed's *obligata* suggests certain philosophical concerns, but they are not those we commonly associate with counterfactuals, at least in part because the *obligata* cannot in any interesting sense be said to be about the actual world.

[46] For detailed discussion of this claim, see Stump "William of Sherwood" and Green, *The Logical Treatise* 'De Obligationibus' (Introduction).

[47] Cf., for example, the concern with indexicals in Norman Kretzmann, "Omniscience and Immutability," *Journal of Philosophy*, 63 (1966), 409–421; John Perry, "The Problem of the Essential Indexical," *Nous*, 13 (1970), 3–21, and H. Noonan, "Identity and the First Person," in *Intention and Intentionality*, ed. Cora Diamond and Jenny Teichman (Ithaca, N.Y.: Cornell University Press, 1979).

[48] See, for example, Hector-Neri Castañeda, "He: A Study in the Logic of Self-Consciousness," *Ratio*, 8 (1966), 130–157; "Indicators and Quasi-indicators," *American*

where,[49] the general concern of obligations seems to be logical or semantic paradoxes based on some sort of reflexivity which resemble but are generally weaker than the self-referential paradoxes of insolubles in that they depend on the disputational context for their paradoxical character. Sometimes, especially in *impositio,* the disputational context is simply used to construct an insoluble, as in Burley's example, "Let 'A' signify a donkey in a true statement, a man in a false statement and 'a man or not a man' in a statement in doubt and then let 'You are A' be proposed."[50] More often, the disputational context contributes to the generation of a paradox by the use of indexicals, by a reference in the premisses to the respondent who is evaluating those premisses or (less frequently) by a temporal indexical, such as a reference to the present instant. Contemporary work on indexicals has shown convincingly, I think, that indexicals and their corresponding referents are not always interchangeable *salva veritate* in individual statements. Obligations as represented by Burley give us reason to think that replacing indexicals with the appropriate referents can on occasion also affect evaluation of the validity of an argument. In the work on obligations of the Oxford Calculators, the interest in insolubles and indexicals persists, but becomes overlaid with other concerns. In the relevant portions of Kilvington's *Sophismata* and Heytesbury's *Regulae,* the main emphasis is clearly on epistemic logic. In the last four sophismata, in which his innovative work on obligations occurs, Kilvington claims to be providing reasons for rejecting the view that knowing something entails knowing that one knows. Heytesbury's work on obligations occurs in *De sensu composito et diviso* and in *De scire et dubitare,* where he is concerned to reject the epistemological claims of Kilvington's last four sophismata because they entail that someone can know and doubt the same statement. So with regard to the purpose and function of obligations, there is a considerable shift of emphasis even in the brief period between Burley and the era of the Oxford Calculators (ca. 1315–1335), with a consequent change in the ways in which we can relate medieval obligations to contemporary philosophy.

Philosophical Quarterly, 4 (1967), 85–100; and "Omniscience and Indexical Reference," *Journal of Philosophy,* 64 (1967), 203–204.

[49] Stump, "William of Sherwood," "Obligations: From the Beginning," and "The Logic of Disputation."

[50] Green, *The Logical Treatise 'De Obligationibus',* § 1.03.

12

Topics, Consequences, and Obligations in Ockham's *Summa logicae*

Ockham's Theory of Consequences: The Issues

The third treatise of Ockham's *Summa logicae,* which comes after the treatises on terms and on propositions, is devoted to arguments, and it is itself divided into three parts. The first part considers the nature of a syllogism and its valid moods; the second discusses demonstrative syllogisms, and the third considers consequences. This third part of the third treatise is the one that is of most interest for a consideration of the relation of consequences to syllogisms, Topics, obligations, and insolubles in Ockham's work. In this part, Ockham adds to his earlier discussion of the nature of a syllogism, presents a thorough account of consequences, makes use of traditional Topical material, and rounds out his examination of consequences with a brief discussion of obligations and insolubles.

In examining Ockham's work on consequences here, I will consider the following issues. First, what does Ockham think consequences are, and how does he think they are related first to Topics and then also to syllogisms, obligations, and insolubles? And, second, what are his criteria for the validity of a consequence, and what, if anything, do these criteria correspond to in contemporary logic? Finally, I will consider briefly the place Ockham's theory of consequences occupies in the history of logic and its relation to the work of the thirteenth-century terminists.

Aristotelianism in Ockham's Logic

Ockham begins Treatise III with a discussion of the syllogism because he believes in the primacy of the syllogism among species of

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arguments.[1] But fundamental to his account of the syllogism are the principles *dici de omni et nullo,* which Ockham explains in this way. Something is said of all (*dici de omni*) when nothing is subsumed under the subject unless the predicate is said of it—which is what is denoted by every universal affirmative proposition. Something is said of none (*dici de nullo*) when the predicate is denied of whatever the subject is said of—which is what is denoted by every universal negative proposition.[2] Every syllogism, on Ockham's view, is regulated either directly or indirectly by one or the other of these principles.[3] The valid moods of the first figure are regulated directly by *dici de omni et nullo* and the valid moods of the other figures are regulated indirectly by these principles in virtue of the fact that they are warranted by reduction to the valid moods of the first figure. By 'regulated' here, Ockham seems in fact to mean 'justified'; the first chapters of this part of Treatise III consist in an investigation of a variety of syllogistic forms to determine whether or not they are regulated by *dici de omni et nullo,* and those that are not are therefore rejected as demonstrably invalid. In addition, when he discusses the reduction of the valid moods of the second and third figure to those of the first figure, Ockham recognizes the importance of conversion, reduction to the impossible, and transposition of premisses in effecting the reduction;[4] and he thinks of cases of conversion (at least) as consequences.[5] Hence, though Ockham begins his treatise on arguments by emphasizing the primacy of the syllogism in the traditional way, reminiscent of the Aristotelianism of the terminists, it quickly becomes apparent that he conceives of the validity of the syllogism as dependent, first, on the principles *dici de omni et nullo* and, second, on certain consequences, such as those of conversion. The primacy of the syllogism is thus considerably undermined, and the categorical syllogism is no longer thought of as the ultimate guarantor of validity in arguments.

The traditional distinction between dialectic and demonstration is also weakened in Ockham's work. On his view, all syllogisms are divided into those that are demonstrative, those that are Topical, and those that are neither (this group at least includes and perhaps coincides with sophistical syllogisms).[6] Demonstrative syllogisms are those whose premisses are necessary; Topical syllogisms, on the other hand, consist of probable propositions.[7] So far, Ockham's account is reminiscent of views from the first half of the thirteenth century, but what Ockham goes on to say is a repudiation of the spirit of those early thirteenth-century views. First, he takes the probable to be what is true, readily believable, *and necessary* (an addition repugnant to early thirteenth-century Aristotelianism); all that is excluded from the probable is what is self-evident or derivable from what is self-evident. So a Topical syllogism, consisting of probable premisses, is deficient in neither the matter nor the form of a syllogism.[8] Second, in the section on consequences, he claims that *all* syllogisms (including then, presumably, demonstrative syllogisms also) hold in virtue of "an extrinsic means," by which he understands a general rule of consequences; and the extrinsic means he cites in examples are often traditional Topical maxims.[9] So though Ockham casts his discussion of syllogistic and dialectic in Aristotelian terminology, his views diverge widely from the Aristotelianism characteristic of logicians in the first half of the thirteenth century.

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[1] William Ockham, *Summa logicae*, ed. P. Boehner, G. Gál, and S. Brown (St. Bonaventure, N.Y.: Franciscan Institute, 1974), p. 359.2–5.

[2] Ibid., p. 363.41–50.

[3] Ibid., p. 362.32–35.

[4] Ibid., pp. 362–364.

[5] Ibid., pp. 322.18–23, 323.40–50, and 323.67–324.86. The following twenty pages contain many such examples.

Ockham's Account of Consequences

Ockham introduces the third section in Treatise III, the one devoted to consequences, as his discussion of arguments which are not in syllogistic form, by which he seems to mean enthymemes; and he claims that what follows will enable the diligent student to hold correct views about all nondemonstrative (i.e., Topical—perhaps even sophistical) syllogisms.[10] This third section, then, is apparently devoted to arguments which are not demonstrative and not syllogistic in form.

Ockham begins this section by drawing a number of general distinctions among kinds of consequences.[11] He tends to organize the material of this section along the lines of all these distinctions, but for my purposes here only three of the distinctions are significant.

(1) Some consequences are simple (or absolute) and others are as-of-now (*ut nunc*). Simple consequences are such that there is *no* time at

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[6] Ibid., p. 360.43–46.

[7] Ibid., p. 359.

[8] Ibid., p. 360.20–24, 360.35–36.

[9] Cf., ibid., p. 588.23–25.

[10] Ibid., p. 587.4–9.

[11] For a general discussion of this material, see Otto Bird, "Topic and Consequence in Ockham's Logic," *Notre Dame Journal of Formal Logic*, 2 (1961), 65–78.

which the antecedent can be true and the consequent false. As-of-now consequences are such that there is *some* time at which the antecedent can be true and the consequent false, but at *this* time—the time at which the consequence is offered—the antecedent cannot be true without the consequent.[12]

(2) Some consequences hold by an intrinsic means and others by an extrinsic means. Those that hold by an intrinsic means are those that are valid in virtue of a proposition employing at least some of the categorematic terms used in the consequence itself. 'Socrates is not running; therefore a man is not running' is a consequence holding by an intrinsic means, because it is validated by the addition of the proposition 'Socrates is a man.' Consequences holding by an extrinsic means are those that are valid in virtue of a general proposition employing categorematic terms different from those employed in the consequence itself. 'Only a man is a donkey; therefore every donkey is a man' is a consequence holding by an extrinsic means, because it is validated by the rule 'An exclusive and a universal [proposition], with the terms transposed, signify the same thing and convert.' All syllogisms, Ockham maintains, hold in virtue of an extrinsic means.[13] What exactly he means by this claim is not clear; it may be that he is thinking of the principles *dici de omni et nullo* as rules of consequences and taking them as extrinsic means warranting (directly or indirectly) all valid moods of the syllogism.

Some consequences which hold through an intrinsic means look as if they also hold by an extrinsic means, thus impugning the distinction between the two sorts of consequences. For example, the consequence 'Socrates is not running; therefore a man is not running' holds by the intrinsic means 'Socrates is a man.' But someone might object that it also holds by the extrinsic means 'From a singular to an indefinite [proposition] with a negation which does not attach to the singular or indefinite subject term (*postposita negatione*) is a good consequence.' In reply to this objection Ockham says that the extrinsic means here cannot validate the consequence unless we add to the consequence the proposition that Socrates is a man. And therefore, this consequence and others like it (for example, all enthymemes) hold directly by an intrinsic means and indirectly or ultimately by an extrinsic means.[14]

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[12] Ockham, *Summa logicae*, ed. Boehner et al., pp. 587.10–588.22.

[13] Ibid., p. 588.34–35.

[14] Ibid., pp. 588.23–589.44: "*Et si dicatur contra istam distinctionem quod ista consequentia 'Sortes non currit, ergo homo non currit' tenet per istud medium extrinsecum 'a singulari ad*

(3) Some consequences are formal and others material. A formal consequence can be either of two sorts. It can hold in virtue of an extrinsic means which has to do with the form of the proposition that is the consequence, such as that given above. 'From an exclusive to a universal proposition with the terms transposed is a good consequence.' Or it can hold directly by an intrinsic means and indirectly by an extrinsic means which has to do with the general conditions of propositions (which I will say something more about shortly). A material consequence, on the other hand, holds in virtue of its terms and not in virtue of an extrinsic means having to do with the general conditions of propositions. Ockham's examples of material consequences are these:

(a) 'If a man is running, God exists'

and

(b) 'A man is a donkey; therefore God does not exist.'

Ockham understands the consequent of (a) to be necessary and the antecedent of (b) to be impossible. These two consequences, then, seem to hold by the rules that

(RN) what is necessary follows from anything

and

(RI) anything follows from what is impossible.

Since Ockham explicitly recognizes and accepts these two rules as general rules of consequences,[15] it seems at first glance inconsistent for him to hold that consequences (a) and (b) are material consequences, not validated by extrinsic means. What he appears to have in mind, however, is the thought that we cannot recognize the conse-

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indefinitam post posita negatione est bona consequentia', quod est medium extrinsecum: Dicendum est quod tenet per istud medium extrinsecum remote et mediate et insufficienter, quia praeter istam regulam generalem requiritur plus, scilicet quod Sortes sit homo" (p. 588.36–42).

[15] For Ockham's discussion of the distinction between formal and material consequences, see ibid., p. 589.45–58. For his acceptance of (RN) and (RI) as rules of consequences, see ibid., pp. 730.88–731.92.

quent of (a) as necessary or the antecedent of (b) as impossible *unless* we take into account the meanings of the terms. It is just the meanings of the terms 'god,' 'man,' and 'donkey' which render the relevant propositions necessary or impossible. And so Ockham seems right to say that these consequences hold in virtue of their terms.

We might, of course, still be inclined to think that these consequences, like the consequence 'Socrates is not running; therefore a man is not running,' hold *indirectly* or *secondarily* by an extrinsic means, namely, the general rules (RN) and (RI) cited just above. Ockham, however, does not claim that *no* extrinsic means validate such consequences. Rather he says that they are not validated by any extrinsic means having to do with the general conditions of propositions. What exactly he means by "general conditions of propositions" is not clear; but when he first introduces the notion of an extrinsic means having to do with the general conditions of propositions, he glosses it by speaking of an extrinsic means having to do with the general conditions of propositions, rather than with truth or falsity, or necessity or impossibility. This gloss suggests a reason for Ockham's maintaining that material consequences hold only in virtue of their terms and not in virtue of an extrinsic means having to do with the general conditions of propositions: he takes the relevant sorts of extrinsic means to be only those which do *not* have to do with the truth or falsity, necessity or impossibility, of the antecedent or consequent in the conditional inference; and so rules (RN) and (RI), which clearly violate such a restriction, are not extrinsic means of the relevant sort, namely, those having to do with the general conditions of propositions.[16]

Ockham's three basic divisions of consequences overlap in a hopelessly untidy way. Consequences holding by an intrinsic means can be simple or as-of-now consequences, though only simple consequences can be consequences holding directly by an extrinsic means. Formal consequences include those holding directly by an intrinsic or an extrinsic means; and formal consequences can be either simple or as-of-now consequences, whereas material consequences are always simple consequences and hold in virtue of their terms as well as (directly or perhaps only indirectly) in virtue of a special sort of extrinsic means.

Most of the rest of the third section of Treatise III is devoted to presenting and discussing rules of consequences, and the succeeding chapters are divided roughly in this way. First, Ockham deals with assertoric consequences, beginning with those that hold in virtue of an intrinsic means; then he turns to assertoric consequences that hold by an extrinsic means. Though Ockham does not use the technical terminology generally associated with the Topics, Topical maxims and arguments traditionally associated with one or another of the Topical Differentiae are scattered throughout this part of the treatise. Consequences depending on definition, description, explanation of a name, superior and inferior (that is, genus and species), integral whole and part, opposites, generation and destruction, and conjugates, for example, can be found recurrently throughout these chapters; and at one point even the old Boethian rule from authority, that the judgment of an expert in his field must be accepted, is discussed as a rule of consequences and accepted in a qualified form, restricting the authority in question to an *infallible* authority, such as Scripture.[17] Though none of Ockham's vocabulary suggests that he thinks of these consequences as Topical, it is hard to believe he does not recognize them as such. (In fact, in discussing the fallacy of the consequent in his commentary on Aristotle's *Soph. El.*,[18] Ockham maintains that the rules for the conversion of consequences, on which recognition of the fallacy of the consequent depends, should be learned from Aristotle's *Topics*.) The succeeding chapters, Chapters 10–16, deal with modal consequences; if there is Topical lore in these chapters, it is much less evident than in the preceding chapters.

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[16] For a detailed discussion of Ockham's distinctions among consequences, see Marilyn Adams, "Did Ockham Know of Material and Strict Implication?" *Franciscan Studies*, 33 (1973), 5–37.

All the consequences in Chapters 2–16 are those in which the terms supposit personally.[19] Beginning in Chapter 17, Ockham discusses consequences whose terms supposit materially. Under this heading, he deals in detail with Aristotelian Topics, considering them in roughly the same order in which they occur in Aristotle's *Topics* (that is, first consequences dealing with accident, then those dealing with genus, then property, and finally definition). Then he discusses what are traditionally known as "the things annexed" to one of these four predicables, such as consequences having to do with sameness or difference, which are annexed to definition. After several chapters on consequences involving induction and equivocation, Ockham concludes this part of the third section with a brief chapter on eight general rules of consequences (with some corollaries). The rules are these:

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[17] Ockham, *Summa logicae*, ed. Boehner et al., p. 614.

[18] Ockham, *Expositio super libros Elenchorum*, ed. F. del Punta (St. Bonaventure, N.Y.: Franciscan Institute, 1979), pp. 61.23ff.

[19] Ockham, *Summa logicae*, ed. Boehner et al., pp. 649.4–650.6.

(1) A false proposition never follows from a true one.
(2) A true proposition can follow from false ones.
(3) The opposite of the antecedent follows from the opposite of the consequent.
(4) Whatever follows from the consequent follows from the antecedent. [Ockham attaches numerous corollaries to this rule, such as these:
  (4a) Whatever the antecedent follows from, the consequent follows from also;
  (4b) Whatever is incompatible with the consequent is incompatible with the antecedent also.]
(5) A contingent proposition does not follow from a necessary one.
(6) An impossible proposition does not follow from a possible proposition.
(7) Anything follows from an impossible proposition.
(8) A necessary proposition follows from anything.[20]

Some of these rules are, of course, unimpeachable; others, such as rule (5), need more discussion and examination than the scope of this essay allows.

Elementarium logicae and *Tractatus minor*

In addition to the *Summa logicae* (*SL*), two other treatises on logic, the *Elementarium logicae* and the *Tractatus minor*,[21] have traditionally been assigned to Ockham,[22] though current scholarly opinion seems inclined to deny the attribution.[23] The treatment of consequences in both treatises but especially in the *Elementarium* bears a strong resemblance to Ockham's discussion of the subject in *SL*. The author of the *Elementarium*, for example, gives the same status to the syllogism as Ockham does, and he accords the same role and the same prominence to the principles *dici de omni et nullo* as Ockham does. His basic divisions of consequences also closely resemble Ockham's. There are, however, some major discrepancies as well. For example, both these smaller treatises make unabashed use of the traditional vocabulary of the Topics, which Ockham so carefully eschews in *SL*. The *Elementarium* follows the old Boethian divisions of Topics, dicussing not only intrinsic and extrinsic but also intermediate Topics; Ockham in *SL* discusses only intrinsic and extrinsic means. The *Tractatus* does mention an intrinsic means at one point but apparently takes it to be a *rule*[24] rather than a proposition formed from the same terms as those in the consequence validated by the intrinsic means, as Ockham has it.[25]

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[20] Ibid., pp. 727–31:
(1) *"ex vero numquam sequitur falsum"* (727.2–3);
(2) *"ex falsis potest sequi verum"* (728.12);
(3) *"ex opposito consequentis sequitur oppositum antecedentis"* (728.21–22);
(4) *"quidquid sequitur ad consequens, sequitur ad antecedens"* (729.41–42);
  (4a) *"quidquid antecedit ad antecedens, antecedit ad consequens"* (729.45–46);
  (4b) *"quidquid repugnat consequenti, repugnat antecedenti"* (729.60–61);
(5) *"ex necessario non sequitur contingens"* (730.73);
(6) *"ex possibili non sequitur impossibile"* (730.74);
(7) *"ex impossibili sequitur quodlibet"* (730.88);
(8) *"necessarium sequitur ad quodlibet"* (731.89).

[21] Edited by E. M. Buytaert in "The *Tractatus logicae minor* of Ockham," *Franciscan Studies*, 24 (1964), 34–100, and "The *Elementarium logicae* of Ockham," *Franciscan Studies*, 25 (1965), 151–276, and 26 (1966), 66–173.

Most important, however, both treatises understand material consequences in a way different from Ockham's in *SL*. The *Tractatus*[26] explains the distinction between material and formal consequences simply by saying that a formal consequence holds in virtue of the form of the propositions and a material consequence in virtue of the matter, that is, of the particular terms in the propositions. The *Elementarium* is more explicit.[27] After giving the same general explanation as the *Tractatus*, the *Elementarium* gives this example of a material consequence: 'An animal is disputing; therefore a man is disputing.' This is not a *formal* consequence, because, in general, inferences of this sort from genus to species are not valid. But it is a good *material* consequence in virtue of the meaning of 'is disputing,' because disputing is something which only men among all animals can do; and so if an animal is disputing, it follows that a man is disputing. This is plainly not the same as Ockham's exposition of material consequences in *SL*, where he takes material consequences to be only those in which the antecedent is impossible or the consequent necessary.[28]

[22] See Buytaert's introductions to his editions cited above.

[23] Cf. Ockham, *Summa logicae*, ed. Boehner et al., pp. 62*–66*.

[24] *Tractatus*, ed. Buytaert, pp. 77–78.

[25] Ockham, *Summa logicae*, ed. Boehner et al., p. 588.24–28.

[26] *Tractatus*, ed. Buytaert, p. 77.

[27] *Elementarium*, ed. Buytaert, p. 255.

[28] Ockham, *Summa logicae*, ed. Boehner et al., p. 589.55–58.

In view of the strong doubt concerning their attribution to Ockham, then, I will not consider these treatises further here.

Obligations and Insolubles

The chapter on the general rules of consequences looks like the appropriate ending for Ockham's consideration of consequences. It is at first surprising, then, that Ockham feels compelled (as he says) to add one chapter on obligations and another on insolubles to complete his investigation of consequences.[29] Ockham is not alone in associating consequences, obligations, and insolubles; such an association is, in fact, common in the fourteenth century and afterward.[30] But, philosophically considered, it appears strange that Ockham treats obligations and insolubles as included within the general subject of consequences.

Ockham himself gives us the explanation in the case of insolubles: if in an apparent consequence (one that appears to be governed by necessary rules) a contingent antecedent yields its opposite, a sophisma involving an insoluble occurs; they are called 'insolubles' because such consequences are difficult to block.[31] Ockham sees insolubles, then, as a special kind of consequences. They involve only contingent propositions, and they have to do with just one sort of fallacious reasoning, namely, that in which by means of apparently unimpeachable rules of consequences a proposition appears to entail its opposite. Ockham's technique for dealing with insolubles consists at least in part in exposing a particular consequence as the essence of a sophisma involving an insoluble and then arguing that that consequence is not valid, as in the case of this example in which Socrates says (S) 'Socrates says what is false' and (S) is the only statement Socrates makes:

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[29] Ibid., p. 731.3–6: *"Quoniam logici circa obligationes et insolubilia speciales faciunt difficultates, ideo ad istius* Summae *completionem, quae de omni modo arguendi generalem tradit notitiam, sunt aliqua brevia perscrutanda."*

[30] See Romuald Green, *The Logical Treatise 'De Obligationibus': An Introduction with Critical Texts of William of Sherwood (?) and Walter Burley* (St. Bonaventure, N.Y.: The Franciscan Institute, forthcoming), Introduction, Chapter II; and Eleonore Stump, "William of Sherwood's Treatise on Obligations," *Historiographia Linguistica*, 7 (1980), 249–264.

[31] Ockham, *Summa logicae*, ed. Boehner et al., p. 744.5–8: *"Unde sciendum quod insolubilia sophismata sunt quando per consequentias apparentes, quae videntur regulari per regulas necessarias, ex propositione aliqua contingenti infertur sua opposita; quae ideo dicuntur insolubilia, quia difficile est tales consequentias impediri."*

> For the solution of this insoluble and of all others like it, one should know that such a contingent proposition [as (S)], from which its opposite may be inferred, either contains the term 'false' (or something similar) or the term 'true' (or something similar). If the former . . . , one ought to say that the proposition is false. . . . [If the latter], . . . one ought to grant that the proposition is true. . . . And if one argues [in this way]: "If this is true: 'Socrates does not say what is true,' and if Socrates says this proposition, then Socrates says a true proposition"—one ought to say that this consequence is not valid: 'Socrates says this proposition, and this proposition is true; therefore Socrates says a true proposition.' And the reason for this denial is that in this proposition 'Socrates does not say what is true,' the predicate cannot supposit for the whole proposition of which it is a part.[32]

It is harder to see why Ockham includes obligations among consequences unless we recognize that obligations consist in consequences in a disputational context. That is, the consequences to be evaluated in obligations are (or at least must be considered as being) presented in an oral exchange which occurs between two disputants and which takes place during a stipulated interval of time. The interesting cases are those in which the disputational context makes a difference to the evaluation of the consequence or to any of its constituent propositions. It is perhaps easiest to generate such interesting cases by including in the premisses of an obligations argument a reference to the evaluator of these premisses.[33] For example, an opponent in an obligations disputation may want his respondent to maintain as true the proposition that he, the respondent, is dead. But if the respondent were to maintain such a proposition as true, he would be in trouble in the disputation, *not* because this proposition is incompatible with some other proposition which the respondent has granted, but instead because it is incompatible with the *action* of the respondent—it is not possible for the respondent to be dead and also responding in an

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32. Ibid., p. 745.22–40: "*Et ad solutionem istius et aliorum omnium est sciendum quod talis propositio contingens, ex qua debet inferri sua repugnans, vel habet hunc terminum 'falsum' vel aliquem consimilem, vel hunc terminum 'verum' vel aliquem consimilem. Si primo modo . . . debet dici quod sit falsa. . . . Si autem propositio contineat hunc terminum 'verum' vel aliquem consimilem . . . tunc est concedenda quod illa propositio est vera. . . . Et si arguitur: si haec sit vera 'Sortes non dicit verum,' et Sortes dicit hanc propositionem, igitur Sortes dicit propositionem veram, dicendum est quod ista consequentia non valet 'Sortes dicit hanc propositionem, et haec propositio est vera, igitur Sortes dicit propositionem veram.' Et ratio huius negationis est, quia in ista propositione 'Sortes non dicit verum' praedicatum non potest supponere pro ista tota propositione cuius est pars.*"

33. See Stump, "William of Sherwood's Treatise on Obligations."

obligations disputation.[34] And so the reference in the premisses to the evaluator of the premisses in conjunction with the context of an oral disputation creates difficulties which would not arise in connection with, for example, the statement 'Socrates is dead' (unless that statement were proposed in an obligations disputation in which Socrates is the respondent). Or, to take another example, the passage of time involved in the presentation of an argument must sometimes also be taken into account in obligations.[35] Ockham acknowledges this case in passing, mentioning propositions which *become* necessary or impossible in the course of time during an obligations disputation.[36]

One of the things that apparently interests Ockham most in his treatment of obligations here, however, involves the peculiar circumstance in which the *positum*, the proposition laid down by the opponent at the beginning of an obligations disputation, is an impossible proposition. Ockham begins his discussion of this case in a way that seems puzzling at first glance, by claiming that there is a great difference between an impossible proposition in the *positio* and a consequence composed of impossible propositions.[37] The consequence 'God is not three persons; therefore God is not God' is acceptable, on Ockham's view; it is, in fact, a material consequence, warranted by the seventh of Ockham's general rules of consequences, namely, that anything follows from an impossible proposition. Nonetheless, according to Ockham, if the antecedent of this acceptable consequence—'God is not three persons'—is laid down as the *positum*, a respondent ought to deny the consequent, 'God is not God,' if it is put forward subsequently in the disputation.

On the basis of this puzzling claim, Ockham makes two further sets of stipulations about an impossible proposition as *positum*. In the first place, he maintains that not every impossible proposition can be laid down as the *positum*, but only such as do not *manifestly* or *obviously* entail a contradiction. In the second place, not all the rules of consequences hold for cases in which the *positum* is impossible. No as-of-now consequences or material consequences are acceptable in any obligations disputation in which the *positum* is impossible.

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[34] Ockham, *Summa Logicae*, ed. Boehner et al., pp. 735.21–736.26. Ockham uses this example to make a technical point whose exposition is unnecessary for my purposes here. I am concerned to show only that on Ockham's view we may need to consider the incompatibility of a proposition with the *action* of a respondent.

[35] See, for example, the example discussed in Stump, "William of Sherwood's Treatise on Obligations," pp. 259–260.

[36] Ockham, *Summa Logicae*, ed. Boehner et al., p. 738.96–104.

[37] Ibid., pp. 739.1ff.

This second stipulation makes sense out of the original claim, namely, that although the consequence 'God is not three persons; therefore God is not God' is a good consequence, the consequent is to be denied if the antecedent is posited. This is a material consequence; and if all such consequences are to be rejected in disputations in which the proposition posited is impossible, then, of course, the respondent cannot maintain that 'God is not God' *follows from* 'God is not three persons.' But why would Ockham stipulate that material consequences are to be rejected in such cases? There are, I think, two reasons—the first practical and the second philosophical—for his stipulation. If we accept the rule that anything follows from an impossible proposition in an obligations disputation where the *positum* is impossible, it will not be possible to have anything but a trivial disputation, because no matter *what* proposition is put to the respondent, it is clear from the outset that the respondent will have to grant it as following from the proposition posited. Hence if we accept this rule of consequences in the context of an obligations disputation, we cannot have a disputation which is of any philosophical interest. Second, if we reject this rule of consequences in such obligations and allow only simple, formal consequences, the result *will* be philosophically interesting, because what we will have in such cases then is something roughly similar to a logic of counterfactuals for a restricted class of propositions. The purpose of obligations disputations in which the *positum* is impossible is apparently to see what is entailed if one takes as true such propositions as 'God does not exist,' 'The Holy Spirit does not proceed from the Son,' or 'Man is not capable of laughter.'

This enables us to understand Ockham's other stipulation, namely, that an impossible proposition which can be used as a *positum* must not manifestly and obviously entail a contradiction. If it did obviously entail a contradiction, the disputation would again end quickly in an uninteresting way. The opponent would derive the contradictory propositions entailed by the posited proposition, which the respondent would be forced to grant; and the disputation would be over because the respondent had granted contradictory propositions. Furthermore, even if the opponent agreed to forego such a cheap victory, interesting and rational results would still be unlikely since all sorts of incompatible propositions are quickly derivable from an impossible proposition which obviously entails contradictories.

Ockham includes obligations among consequences, then, because he conceives of them as providing special, philosophically interesting difficulties in the evaluation of consequences in virtue of the disputational context in which these consequences are presented, and because on his view they include a study of a special kind of consequences, namely, certain sorts of inferences from a restricted class of impossible propositions.

Ockham's Theory of Inference

Various scholars have claimed to find different theories of inference in Ockham's work on consequences. Boehner, for example, identified Ockham's material consequences with material implication.[38] E. A. Moody, on the other hand, took all as-of-now consequences as instances of material implication[39]; and both scholars tended to interpret the remaining sorts of consequences as cases of strict implication. Moody's and Boehner's views have come under attack in recent years by M. Mullick[40] and by Marilyn Adams.[41] Adams's work in her excellent article "Did Ockham Know of Material and Strict Implication?" is somewhat broader in scope than Mullick's; she argues that both Moody and Boehner are mistaken and that none of Ockham's particular divisions of consequences is to be identified with material implication. Adams's insightful and scholarly arguments on this score are, I think, altogether convincing. But she concludes her article with a brief section maintaining that Ockham does have "a basic notion of inference that coincides exactly with material implication,"[42] and there I think she is mistaken.

She argues for her view in this way:

> Grounds for this claim can be found in Ockham's opinions, if one focuses again on the division between simple and as of now inferences. Since this distinction is among good inferences and true conditionals, any inference or conditional that satisfies either conditions (i) that it is not the case *now* that the antecedent is true and the consequent false, and (ii) that it is *possible* that the antecedent

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[38] Cf. Philotheus Boehner, "Does Ockham Know of Material Implication?" in *Collected Articles on Ockham*, ed. E. M. Buytaert (St. Bonaventure, N.Y.: Franciscan Institute, 1958), pp. 319–351.

[39] Cf. E. A. Moody, *Truth and Consequence in Medieval Logic* (New York and Amsterdam: North-Holland, 1953), pp. 64–80.

[40] M. Mullick, "Does Ockham Accept Material Implication," *Notre Dame Journal of Formal Logic*, 12 (1971), 117–24.

[41] Adams "Did Ockham Know of Material and Strict Implication?"

[42] Ibid., p. 6.

> should be true and the consequent false at some other time; or conditions (iii) that it is not the case now that the antecedent is true and the consequent false, and (iv) that it is not possible that its antecedent should be true and its consequent false at any other time; is a good inference or a true conditional. But it is a necessary truth that every inference and every conditional proposition either is such that is satisfies (ii) or is such that it satisfies (iv). For any conditional proposition, it either is or it is not possible that its antecedent should be true and its consequent false at some time. Consequently, all that one needs to determine, in order to determine which inferences are good and which conditional propositions are true, is to determine which ones meet condition (i) (which is the same as condition (iii))—i.e., one must determine which inferences and conditional propositions are such that it is not the case that their antecedents are true and their consequents false. Ockham's discussion of simple and as of now inferences thus suggests that satisfying condition (i) is sufficient for an inference's holding good or for a conditional proposition's being true. This is so, even though satisfying condition (i) is *not* a sufficient condition for an inference or conditional proposition to be a good inference or a true proposition *of a particular sort*—e.g., a true *simple* conditional proposition, or a true *material* conditional proposition.[43]

Adams suggests, then, that on Ockham's view material implication is the genus of all valid inferences from which the species such as simple inferences are constructed by the addition of certain qualifications to the truth conditions for material implication. Thus the criteria for simple inferences are constructed by adding condition (iv)—that it is *not possible* for the antecedent to be true and the consequent false—to the conditions for material implication. But, on this interpretation, the criteria for as-of-now inferences are constructed by adding condition (ii) to the conditions for material implication. Condition (ii) is not a truth-functional condition, as Adams points out[44]; but it *is* a condition that holds for all cases of material implication (though not for strict implication). Therefore, if condition (i) is equivalent to the truth-conditions for material implication, as Adams claims, the class of as-of-now inferences should coincide with the class of instances of material implication; condition (ii) adds nothing which restricts or alters the conditions in such a way that as-of-now inference differs from material implication. But Adams herself argues effectively that it is a mistake to identify as-of-now inference with material implication.

Furthermore, even given the truth-conditions for simple and as-of-now consequences as Adams presents them, condition (i) is not equivalent to the truth-conditions for material implication. Condition (i), as Adams gives it, is "it is not the case *now* that the antecedent is true and the consequent is false." This is more restricted than the conditions for material implication. It contains a reference to present time, as the conditions for material implication do not; and it leaves open the possibility, again contrary to the conditions for material implication, that at some time other than the present the antecedent is true and the consequent false. Even if Ockham held condition (i), then, and even if we agreed with Adams's argument that by Ockham's own standards satisfying condition (i) is *sufficient* for the validity of an inference, it would not follow that satisfying condition (i) is equivalent to satisfying the truth-conditions for material implication or that Ockham's basic notion of inference "coincides exactly with material implication."

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[43] Ibid., pp. 35–36.

[44] Ibid., p. 11.

Finally, I do not think condition (i) does accurately represent Ockham's view of one of the conditions for as-of-now inferences. What Ockham in fact says about as-of-now inferences is this: "An as-of-now consequence occurs when the antecedent can be true without the consequent for some time but not for this time."[45] And he goes on to give an example which strengthens the impression of the remark: "For example, this consequence is only as-of-now: 'Every animal is running; therefore Socrates is running,' because for this time, in which Socrates is an animal, the antecedent cannot be true without the consequent; and nevertheless for some time the antecedent will be able to be true without the consequent because when Socrates will be dead, the antecedent will be able to be true although the consequent is false."[46] The first condition for as-for-now inferences, then, is not equivalent to the truth-conditions for material implication but rather should be read as this: (i′) it is not the case *now* that the antecedent *can* be true and the consequent false.

Adams recognizes that Ockham's text contains a definition of as-of-now consequences in terms of (i′); but she argues that no matter what interpretation we give to the modal operator in (i′), some view which is obviously false or incompatible with other views of Ockham's results. And she concludes therefore that what Ockham means is "that if 'p; therefore q' is an as of now inference, the conjunction 'p.-q' is false now, while '-(p.-q)' is true."[47] But the text of Ockham's account of as-of-now inferences is unambiguous and makes it clear that it is condition (i') rather than Adams's (i) to which Ockham is committed. Adams claims that if the modal operator 'not possible' is interpreted as 'contradictory,' "the claim is too obviously false for Ockham to make," because he would have to be claiming, for example, that "the conjunction 'Every animal runs and it is not the case that Socrates runs' is contradictory now, although there is some time at which it is not contradictory."[48]

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[45] Ockham, *Summa Logicae*, ed. Boehner et al., p. 587.11–13: "*Consequentia 'ut nunc' est quando antecedens pro aliquo tempore potest esse verum sine consequente sed non pro isto tempore.*"

[46] Ibid., pp. 587.13–588.18: "*Sicut ista consequentia est ut nunc solum 'omne animal currit, igitur Sortes currit', quia pro isto tempore pro quo Sortes est animal, non potest antecedens esse verum sine consequente; et tamen pro aliquo tempore poterit antecedens esse verum sine consequente, quia quando Sortes erit mortuus, poterit antecedens esse verum consequente existente falso.*"

It seems to me, however, that this is just what he is claiming, and I do not think it is obviously false. The consequence in question is one which, on Ockham's view, is validated by an intrinsic means—namely, the proposition 'Socrates is an animal.' The consequence in its validated form, then, is 'every animal is running and Socrates is an animal; therefore Socrates is running.' This is, of course, a valid inference; and the conjunction 'every animal is running and Socrates is an animal and Socrates is not running' is contradictory. It is apparently Ockham's view,[49] however (and this view is common in the scholastic period), that when the subject term of a proposition refers to what is nonexistent, the proposition is false. In other words, it apparently is Ockham's view that when Socrates is dead (for example), it is not true that Socrates is an animal. That view evidently lies behind Ockham's discussion of this particular example, in which he claims that when Socrates is dead, it will be possible for the antecedent of the consequence to be true and the consequent false. And so, on Ockham's account, the denial of the consequence 'Every animal is running; therefore Socrates is running'—namely, the conjunction 'Every animal is running and Socrates is not running'—which is contradictory when Socrates is alive, is not contradictory when he is dead in virtue of the fact that when he does not exist he is not an animal.

I think, then, that the first condition for as-of-now inferences must be taken as (i') rather than as (i), and that when it is taken in that way it does not commit Ockham to any obviously false or inconsistent positions about the nature of valid inferences. Hence, I think the claim that on Ockham's view the truth-conditions for material implication are sufficient for the validity of an inference is mistaken. And since Adams has shown convincingly that none of Ockham's basic divisions of consequences is to be identified with material implication, I think it is reasonable to conclude that Ockham did not recognize or accept material implication. That he did recognize and accept strict implication is, I think, not open to serious doubt, though there is ample room for controversy over some of the particular inferences Ockham seems to take as examples of acceptable simple consequences (i.e., as instances of strict implication)—as, for example, 'the generation of a man is good; therefore a man is good.'

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[47] Adams, "Did Ockham Know of Material and Strict Implication?" p. 13.

[48] Ibid., p. 12.

[49] Cf. Ockham, *Summa Logicae*, ed. Boehner et al., pp. 72, 87, and 764ff. I am grateful to Rega Wood for these references.

Conclusion

If we compare Ockham's logic in light of all these considerations with that of the thirteenth-century terminists, his seems both more and less formal than theirs. Peter of Spain, for example, has a formal logical system of a sort, but it is a very restricted one, in which the sole guarantor of the validity of any argument is the categorical syllogism. All nonsyllogistic arguments, such as Topical arguments, the terminists tend to force into syllogistic form, as can be seen most clearly in William of Sherwood's treatment of Topics. Conversion inferences in particular pose a problem for the terminists because they are clearly nonsyllogistic, and the validity of certain moods of the syllogism depends in crucial ways on the validity of some conversion inferences. By contrast, Ockham's account of formal logic is much broader. It recognizes, accepts, and accounts for a large variety of nonsyllogistic inferences, including obligational inferences, without trying to force them into syllogistic form; it includes syllogisms as one species of consequences among others; and it takes consequences in general, including syllogistic consequences, to be warranted directly or indirectly by rules of consequences. In this way, it gives a more unified and systematic treatment of a greater number of types of arguments than does the approach of the terminists. On the other hand, to the extent to which the terminists use the first-figure syllogism as the ultimate guarantor of validity in arguments, to that extent they have a purely formal logic, in which arguments that are valid are so solely in virtue of their form. In contrast, many of the rules of consequences which Ockham accepts as validating consequences have to do not just with the form of a consequence but also, for example, with certain semantic features of the terms in the consequence or metaphysical features of things referred to by the terms. Ockham seems to broaden the scope of the evaluational procedures of logic, away from the very restricted criteria of terminist logic, in a way that compromises the formal character of logic. In the terminists, then, the foundations of logic are highly formalized but also extremely restricted in scope, involving only the valid moods of the categorical syllogism. In Ockham the scope of logic is greatly broadened, but the broadening is accomplished at the cost of some of the formality. Nonetheless, by comparison with the work of his predecessors Ockham's logic clearly represents an enormous advance, showing a development toward a logic that is both formal and able to account for as large a variety of inferences as possible.

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